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The American Artisan
AND HARDWARE RECORD

Vol. 58. No. 7. CHICAGO, AUGUST 14, 1909. $2.00 Per Year.

TURN BUCKLES

A full line of Bolts, Bolt Ends, Rivets, Lag Screws, Nuts, Washers and Carriage Hardware.

COLUMBUS BOLT WORKS,
COLUMBUS, OHIO.

"AMERICAN SEAL"
ASBESTOS FIREPROOF FURNACE CEMENT
SAVES MONEY

Trade Mark

Furnace and range castings should be properly mounted in the first place to avoid trouble.

A perfect Fire-proof Cement will save much Time and Money

It must be a cement that insures perfect joints. A cement that will not crack, crumble or fall out and it must be smokeless and odorless.

WE GUARANTEE—"American Seal" Asbestos Furnace Cement to be just exactly right—a perfect cement.
It is the best that money can buy and the most reliable made.
STANDS 3200 DEGREES OF HEAT WITHOUT SHRINKING.
Write to-day for prices, etc.

Western Agents: Friedley-Voshardt Co., 194 Mather Street Chicago, Ill.
THE WM. CONNORS PAINT MFG. CO. TROY, - - NEW YORK
Southwestern Agts: Stockhoff Supply Co., 107 N. Main Street St. Louis, Mo.

Do you want enough samples of
THE IWAN PERFECTION WIRE-CONDUCTOR PIPE HANGERS
for a small job of spout-hanging?

It is only by getting enough samples to complete a job that you can realize the advantage of these hangers over other methods of attaching spouting.

For 20 cents, either silver or stamps, we will send you a box of 15 Perfection Hangers, either 2½ inch or 3 inch, by mail postpaid. This is considerable less than cost to us, as the postage alone is about 15 cents.

To attach pipe with these hangers, strip the hanger over the pipe, then nail one end of the hanger to the building. Then pull the other end of the hanger tight and nail it also. You will find that it holds the pipe very firmly on all sides, while a common tin strip only holds it on the outside. The hanger also holds the pipe an inch from the building to permit painting.

As they are made of galvanized wire, they will last a long time. If you find that you can use them in your tinning work we can supply you direct, or will send you the addresses of the nearest jobbers handling them. Don't fail to send for the samples if you have never tried them.

IWAN BROTHERS, Mfrs.
South Bend, Ind.

"To discontinue an advertisement," says Ex-postmaster-General John Wanamaker, one of the largest advertisers in the world,—and, naturally enough, one of the most successful business men,—"is like taking down your sign. If you want to do business you must let the people know it. I would as soon think of doing business without clerks as without advertising."

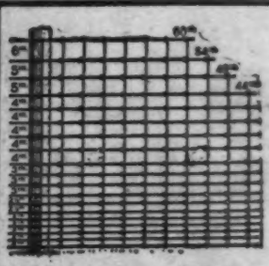
"NEVER-BREAK"
TRADE MARK

Catalog Free

"NEVER-BREAK"
STEEL SPIDERS, GRIDDLES AND KETTLES

WILL NOT Scale Off like cheap enamel.
WILL NOT Scorch or Burn like light fry pans and skillets.
WILL NOT Absorb Grease or Flavors like cast iron.

THE AVERY STAMPING CO.
CLEVELAND, OHIO
Sole Manufacturers
"NEVER-BREAK" Goods



The Denning Fence

¶ Is the Fence that pleases your customer. It is made on scientific and practical principles. It is made in various sizes, weights and meshes, for stock, hogs, poultry and rabbits.

Write for catalog and prices on Lawn and Cemetery Fencing, Gates, Barb Wire, Nails, Staples, Portable Corn Cribs and Grain Bins.

The Denning Wire & Fence Co., Cedar Rapids, Iowa.

MATCHLESS

Spring and Pivot Hinges, Floor Hinges, Jamb Hinges and Hardware Specialties

☞ The Matchless Jamb Hinge is well made of either steel, brass or bronze metal, single and double acting, in all sizes and finishes—for light and heavy doors. Our goods are all of the highest quality. If your jobber cannot furnish them, write us.

LAWSON MFG. COMPANY
40 Dearborn Street, CHICAGO, ILL.

GOOD LUCK GAS STOVE

In addition to its wonderful heating power, due to its great radiating surface,

This Stove is also a Powerful Air Circulator

No. 17—Will circulate 3,000 cubic feet of pure air per hour.
No 18— " " 4,000 " " " " " " "

15 Cents a Week Buys The Gas

1,000 Feet of Natural Gas

Burns 83 Hours and 39 Minutes.....in No. 17 Good Luck
" 67 " " 34 " .....in No. 18 Good Luck

Provided the Pressure is 4-10 and Valves are wide open.

No. 17 Good Luck is 14½ inches wide and 21½ inches high
No. 18 Good Luck is 18½ inches wide and 24 inches high

Either will heat any space that 4 asbestos back stoves of same size will heat

After you run one of these stoves an hour, you can turn off the fire and the stove will radiate heat for one hour.

When gas costs 30 cents per 1,000, anybody that burns over 15 cents worth in a week in either one of these stoves is wasting it, even if running the stove 24 hours a day.

VERY LOW PRICED

Stove and Range Company of Pittsburgh

Good Value in Stoves

Pittsburgh, Pennsylvania

Big Profits in School-house Heating !!!

WITH the SUPERIOR School-house Heater you can actually prove to any School Board that your heating system will produce *more healthful, safer heat from less fuel* than any other heater, furnace or boiler on the market.

¶ No matter what others may claim—*it's proof that counts.*

¶ The SUPERIORS have been in use for years. By the test of time they have out-classed every other system.

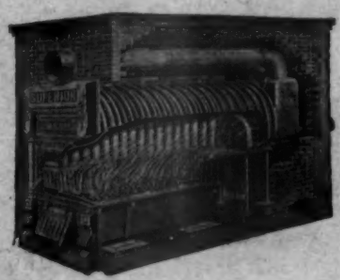
¶ We can show you letters from School Boards showing what they think of the SUPERIOR after observing them in use for years.

¶ Let us give you the figures we have on the comparative cost of heating schoolrooms by warm air and steam.

¶ Let us explain to you the features of the SUPERIOR that increase the efficiency and keep down the coal bills.

¶ Let us show you how we can help you land more heating contracts.

¶ Write us today.



SEND FOR OUR NEW CATALOG

Utica Heater Company

Utica, New York

Chicago Branch: 105 Lake Street, Chicago

PREPARE

For a bigger, a better, a more profitable STOVE business than you ever had before.

¶ Show your competitors *"a clean pair of heels."* Secure the agency for the best base burner ever placed on the market and know what it is to control the stove business in your town.

¶ BE A LEADER. Since the very first appearance of this marvelous heater upon the market it has set the pace for all competitors, and has been the biggest money maker for dealers ever manufactured.

THE MONITOR RADIATOR

Sectional View
Note the Difference

¶ THIS BASE BURNER WITH FIVE FRONT FLUES has proved itself to be all we ever claimed for it. It has given every purchaser unbounded satisfaction and boomed the stove business of every dealer who has handled it.

¶ It is a stove absolutely without competition. We guarantee that it has 1,683 square inches more radiating surface than any other stove made.

¶ A perfect heater in every respect, economical and the only one of its kind on the market, it offers dealers the opportunity of their lives to make this the biggest, the best and the most profitable year they ever had.

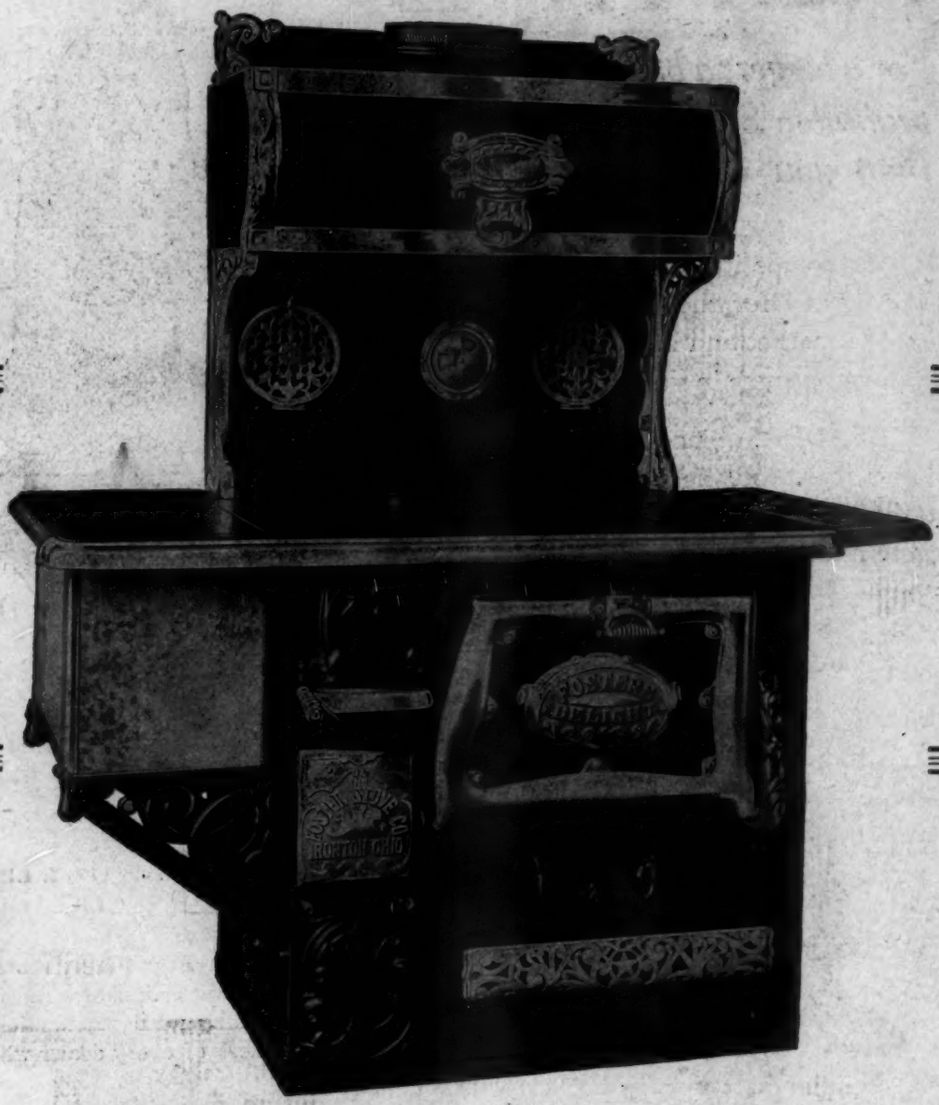
We want One Dealer in Each Town and offer good inducements.

Beat your competitor to it. It means money in your pocket.

The Monitor Stove & Range Company

CINCINNATI, - Ohio

THE FOSTER LINE



FOSTER'S DELIGHT

¶ A new Contact Reservoir Addition to

"THE FOSTER LINE"

¶ This is a very heavy, well constructed steel range which we unhesitatingly recommend to you.

¶ Ask for information about **Foster's Agent, Foster's Opal, Foster's Regal, Foster's Tropic, Foster's Crown** and **Foster's Delight.** All of which are made from our own original wood patterns.

¶ In addition to these we will have **Foster's Flyer, Foster's Victor** and **Foster's Acme** ready for the "Fall" trade.

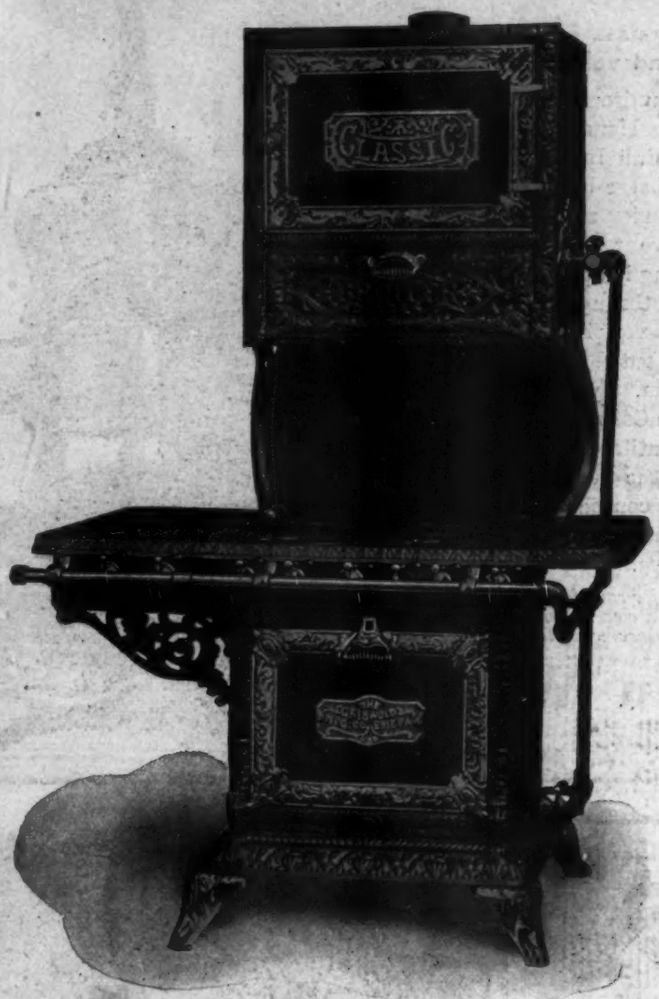
¶ Watch for *them*. We will gladly answer any inquiries.

THE FOSTER STOVE COMPANY

IRONTON, Ohio and KANSAS CITY, Mo.

MAKERS OF "THE FOSTER LINE."

CLASSIC GAS RANGES



BY PURCHASE the *Germer Stove Company* have added the major portion of the Classic Line of Gas Ranges and Heaters to their already extensive and celebrated Line of Radiant Home Stoves, Ranges and Furnaces. By additions and improvements to these already well-known Heaters and Ranges they propose to make their Line excelled by none.

¶ The same close attention to construction, skilled workmanship and quality of material and finish that has placed the Radiant Home in its enviable position will be given the Classic Line.

Single Ovens
Double Ovens
High Ovens

Simmering Burners
Giant Burners
Sawed Burners
Drilled Burners

Revolving Lighter
Oven Lighter

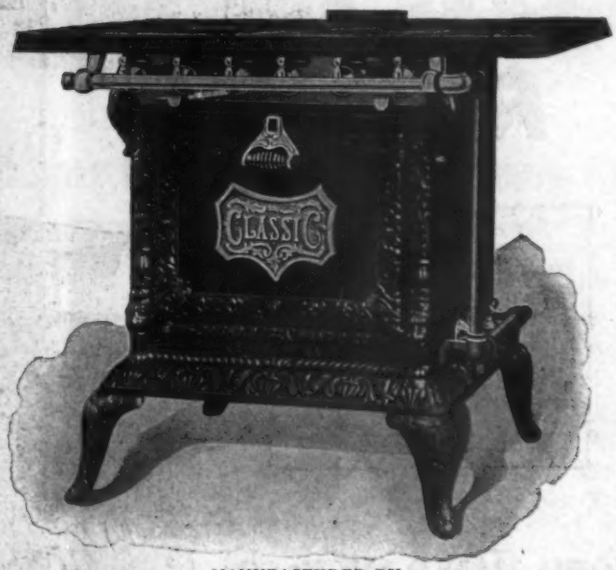
Natural Gas
Artificial Gas

Lever Valves
Needle Valves
Adjustable Valves

Side Broilers
Oven Broilers
Independent Broilers

Special Broiler Burners
Four, Six and Eight
Burner Top

Steel Warming Closet
Steel High Shelf



¶ All burners and linings removable and interchangeable among ranges of same series.

¶ All drop oven doors nicely spring balanced. Swing doors perfectly adjusted. Heavy wire coil handles.

MANUFACTURED BY
GERMER STOVE COMPANY
WESTERN BRANCH:
231-247 Newberry Avenue
CHICAGO, ILL.
ERIE, PA.

Be a Leader and a Financier

THE BEAVER is a

Sales Builder, Trade Winner, Profit Maker

THREE IMPORTANT THINGS

BEAVER OAK Full Nickeled, Single and Double Heater. None better. A complete line of ranges, heaters and furnaces

THE DANVILLE STOVE & MFG. CO.

Makers of "Beavers the Best"

DANVILLE, PENNA.

AGENCIES: 97 Beekman St., New York City. 107 3rd Ave., Pittsburg, Penna. 55 No. 2nd St., Phila., Penna. 483 to 497 No. Water St., Chicago, Ill. 561 to 563 Mission St., San Francisco, Cal.

The PENN OPAL

THIS IS A HANDSOME BASE BURNER. A FINE SELLER AND A GREAT PROFIT MAKER MADE IN FOUR SIZES

Plenty of Nickel

Best Materials

Throughout

Registered Trade PENN Mark

All the Modern Features

Quality Guaranteed

THE TRADE MARK "PENN" ALWAYS GIVES ASSURANCE OF NOTHING BUT THE BEST

Every dealer should have our complete Catalog giving particulars of the "PENN" line

MT. PENN STOVE WORKS, READING, PA.

111-113 No. 2nd STREET PHILADELPHIA, PA.

The Champion Interchangeable Gas Range

2 IN 1

The Range that does double the work of any other Gas or Coal Range

You can COOK, BAKE, ROAST and BROIL with Gas, Coal or Wood without *removing a burner*

More Economical than a Gas Range

Has six 8-inch cooking holes with reducing lids, two summer grates; oven, 18½ x 20½ x 14. Broiler 18½ x 20½ x 14. Warming closet of CHAMPION STYLE, body of polished steel, full asbestos lined. Made with the usual CHAMPION CARE.

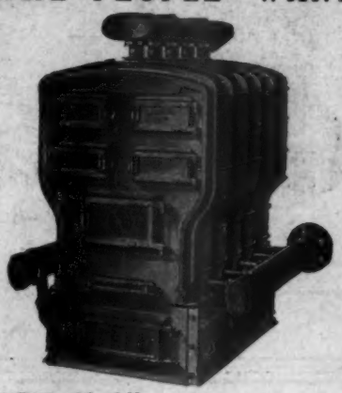
A RANGE OF QUALITY, DURABILITY and ECONOMY

Write for Catalogue and Discounts

The Champion Steel Range Company

CLEVELAND, OHIO

THE PEOPLE WANT



"K-M-C" BOILERS and KEWANEE RADIATORS

You can secure the contract if you install these goods.

Prices and discounts to the trade only.

Kellogg-Mackay Company

Heating and Plumbing Supplies

CHICAGO

Minneapolis Seattle

100 Tinners' Patterns

COMPLETE FOR $1.00

Sent Postpaid on Receipt of Price.

DANIEL STERN,

355 Dearborn St. Chicago.

Munsell's Mica

EUGENE MUNSELL & CO.
NEW YORK AND CHICAGO

THE STANDARD FOR HIGH GRADE STOVES

ITS GREAT RADIATING SURFACE

MAKES THE

MARSHALL

HARD-COAL-BASE-BURNER

THE GREATEST HEATER EVER MADE.

It is a wonderful stove, very reasonable in cost, but will heat more space with less fuel than the largest and more expensive base burners. Heat makes three complete circuits of stove.

Write to M. TRAVILLA, Quincy, Illinois

New! New! New!

For 1909

A Stove For The Masses

THE

Loyal Gold Coin

Ventiduct Base Burner

¶ This Base Burner is entirely new for 1909 and is a combination of all the latest and best improvements known to the stove craft.

¶ Note its beauty—it is the handsomest stove ever placed on the market.

¶ And just as its massive and symmetrical proportions attract the eye, its ease and perfection of operation, its economy and its thoroughness of construction are bound to attract the attention of those who know and want a first-class heater—it's a sure trade-winner.

¶ *We would like to tell you something more about this stove and send you our new Catalog which is hot off the presses and a little different and more complete than any you ever saw.*

JUST DROP US A LINE TO-DAY

Chicago Stove Works

CHICAGO, ILLINOIS

Faultless Malleable Ranges have the **FIVE ESSENTIALS:** Design, Finish, Materials, Workmanship and Durability. Write for new catalog, "Range Reasons."

Faultless Malleable Stove Works, St. Charles, Ill.

The New CELLULAR OVERDRAFT FIRE POT

HAVE YOUR FURNACES GOT IT?

Better write us.

THE BONNOT COMPANY

CANTON, OHIO

HERE'S A SNAP FOR WIDE-AWAKE RANGE DEALERS

I am going to sell 1000 400-lb. SIX-hole steel ranges finished in Japan for not over

$15.00 Each

I'll sell the ranges too, so you'd better get in line and order now. These Ranges formerly retailed at $40.00 each. Send me a carload order and get my best cash discount, or I'll give dating to firms with satisfactory credit. What better proposition can you ask for, if you have a little capital, are sufficiently enterprising, and want to make money? Do You Know there is a big demand for the "Willard" Steel Ranges because they give perfect satisfaction, and don't cost too much? Then why don't you supply them?

WILLARD STEEL RANGES

are advertised in many leading publications, and the people know them and want them. Get my prices—It means profit DOLLARS—to you. Every sale leads to another. I can sell you a better range than you can buy ANYWHERE for the money, one that cooks well and bakes evenly and perfectly, and will last a lifetime, with proper care. Tell me how many ranges you can sell annually and I will make you a very interesting proposition. Agents Wanted.

WM. G. WILLARD, No. 119 Willard Bldg., 320 Chestnut St., St. Louis, Mo.

BOYNTON

STEEL DOME SQUARE POT DOUBLE RETURN FLUE FURNACE

With Heavy Steel Plate in the Body, and Flue Pipes, where it is needed for quick heating, and Cast Iron where necessary for durability. The Fire-Pot and all below it, including the Horse Shoe Radiator, are of the best quality of Cast Iron.

Our experience has taught us that this is the very best construction of a Steel Furnace, for durability as well as heating, especially where the basement is the least bit damp, or where soft coal or wood is used.

GIVE THIS FURNACE A TRIAL AND BE CONVINCED

BOYNTON FURNACE COMPANY

147-149 Lake Street, CHICAGO
106 West 37th Street, NEW YORK
230 Pacific Avenue, JERSEY CITY

FAULTLESS SCIENTIFIC HEATER

A Perfect Warm-Air Heater of faultless design and operation, producing warm air Pure, Healthful and Satisfying

The "FAULTLESS" isn't just a plain, common, ordinary hot-air furnace, and isn't to be so classed or compared. The "FAULTLESS" is wholly a different proposition. The "FAULTLESS" is a warm-air furnace affording a plentiful supply of pure, wholesome warm air, the kind that keeps you comfortable, not the scorched hot air that is sometimes the production of air heaters. The "FAULTLESS" maintains a steady temperature and is economical in fuel. It is the only air heater that is properly designed and constructed, and being so is the best thing a dealer or heating engineer can afford to handle and install. To make it interesting and profitable to the dealer and heating engineer, we are prepared to make a very attractive proposition. Shall we have the pleasure?

The Graff Furnace Co.

[Sole Manufacturers

208 Water Street New York City.

Showing Flue Construction, Fire Pot and Extension Flue Partitions

The FRONT RANK STEEL FURNACE.

"THE STANDARD OF THE WORLD."

Absolutely Gastight Because FRONT RANK furnaces are made of steel where iron has hitherto been used they are absolutely free from all danger of leaking gas.

Burns Any Fuel Any kind of fuel can be burned with equal success in the FRONT RANK. The radiators are large, more than three times the capacity of the smoke pipe, so even with the dirtiest coal, they cannot choke up.

Perfect Combustion Combustion in the FRONT RANK is positive and perfect. Installed right in the beginning it cannot be otherwise.

No Direct Draft There is no direct draft in the FRONT RANK to warp out of place and let the heat escape up the chimney.

The furnace is the result of 20 years of improvement. Not one of its features is an experiment. Every point is of proven merit. It is the most durable, practical and safe furnace ever made.

Let us send you complete descriptive matter and our agency proposition.

Haynes-Langenberg Mfg. Co.

4045-4057 Forest Park Blvd., St. Louis, Mo.

BETTER MARVEL HEAT PRODUCERS FURNACES

A New Marvel Catalog is just off the press showing new features just added to our line. All of our various styles for various purposes and all climates are shown.
A postal will bring it to your desk.

INTERSTATE MANUFACTURING COMPANY

OSKALOOSA, IOWA

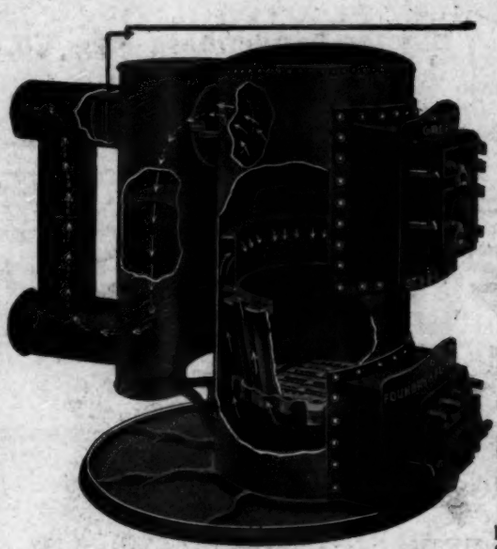
"GILT-EDGE" FURNACE SALES MEAN "GILT-EDGE" SATISFACTION

For The Dealer and His Customers

"GILT-EDGE" Insures the Greatest Economy, Durability and Power.
Our Publicity Department will co-operate with you.
Write for selling plans, catalogues, etc.

R. J. SCHWAB & SONS COMPANY
Manufacturers
Park, Clinton and Reed Sts., MILWAUKEE, WIS.

What Kind of a Furnace Can You Sell?



Do you want one which has all of the modern improvements, large radiating surface, fuel saving devices and up-to-date conveniences? Do you want a furnace which has all of the good points on the furnace your competitor is selling and a great many more? If so, look over

Green's Base Heater Furnace

In this furnace you have the slotted fire pot with the hot blast feature, where the air not only has an opportunity to travel through the slots, thus consuming the smoke and gases, but the circulation of air, both inside and outside of this bowl keeps it evenly heated. The fire pot radiates a great amount of heat which quickly penetrates through the steel, making this furnace a heater, not only from the linings up, but the entire steel from the bottom plate is radiating surface.

It has double feed doors, water coil pockets, deep ash pit, roller grates, large radiator.

Write for catalogue giving full description of this and other furnaces. Do this to-day.

Green Foundry & Furnace Works
2nd and Vine, Des Moines, Iowa

Lincoln Stove Repair Co.
State Mgrs., Lincoln, Neb.

Rowe Construction & Heating Co.
State Mgrs., Watertown, S. D.

OUR NEW
De Haven All Cast Furnace
STRICTLY MODERN AND UP-TO-DATE IN EVERY RESPECT

All the latest features in modern furnace construction are embodied in the make-up of this furnace. Features:

Extra Heavy; Gas Tight; Burns all Grades of Hard Coal, Soft Coal and Wood; Simple and Economical to Operate; Top Return Flue Radiator; Large Radiating Surface; Rolling Bar Grate.

WRITE TODAY FOR CATALOG AND PRICES

Youngstown Furnace & Supply Company
Manufacturers of the Celebrated LION-APEX and BESSEMER Series of Furnaces
Niles, Ohio

Chicago Branch
218 East Lake Street

ROOD & McINTYRE
Kansas City, Mo., Southwestern Distributers

BEST MADE BEST KNOWN BEST LIKED

The AJAX

ECONOMICAL, DURABLE and LOW IN PRICE

It is the result of years of manufacturing experience and has won on **its merits alone** the splendid popularity it has attained among the furnace men. Come in and let us **SHOW YOU WHY**

The AJAX FURNACE

cannot be beaten for actual service. It gives the greatest amount of heat from the least amount of fuel.

Watch for appearance of the new LOW DOWN AJAX just added to our line. It is a **Winner.**

CO-OPERATIVE FOUNDRY COMPANY, Rochester, N. Y.

Western Branch: 264 South Clinton St., Chicago, Ill. Phone Harrison 6373

A Passport to Comfort

Is what everyone receives who buys a XXth Century Heater. Dealers are reaping the benefit of this fact. Write for illustrated catalogue which tells all about it. Mailed promptly on request.

XXth Century Heating & Ventilating Co.

Manufacturers of the Celebrated XXth Century Line of Warm Air Furnaces and Steam and Hot Water Boilers.

GENERAL OFFICE AND FACTORY AT AKRON, OHIO.

THE FIRE IN A

Sprague or Western Underfeed Furnace

is never smothered by fresh fuel, but on top burning brightly and forced against the radiating walls of the furnace.

Puffs or explosions of gas are impossible.

Write for our new Catalog.

SPRAGUE FOUNDRY & MFG. CO., Council Bluffs, Iowa

CUT THIS OUT

THE AMERICAN ARTISAN AND HARDWARE RECORD

DANIEL STERN, Publisher and Proprietor,
355 Dearborn Street, CHICAGO.

Please send us THE AMERICAN ARTISAN each week for three months. At the end of that time we will remit Two Dollars for one year's subscription, or 50 cents in case we decide to discontinue.

Name.....

Address.....

Town..... State.....

MONCRIEF

TOP RETURN FLUE WARM AIR

FURNACE

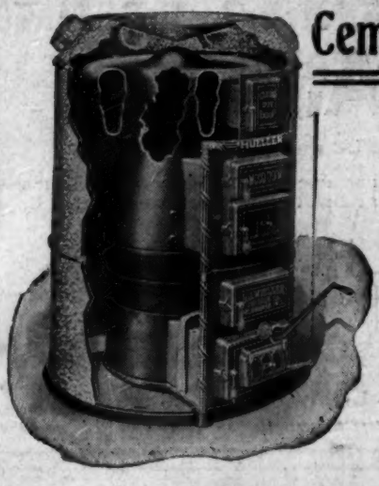
A strictly modern, up-to-the-times furnace that invariably gives satisfaction to every user. Here is a furnace that any dealer can stake his reputation on. Every feature of merit known to first-class furnace construction will be found in its make-up. Every part is perfect and every detail has been given careful attention.

It's THE furnace to offer your most particular customers. Write for our Catalog.

HENRY & SCHEIBLE COMPANY

825-29 Long Ave. N. W., CLEVELAND, OHIO

J. C. KIMMEL, 3314 E. 15th St., Kansas City, Mo., Western Sales Agent.



Cement the Friendship of Your Customers

by educating them that the best is the cheapest for them to buy—therefore a material saving to them in the long run.

Your customers will gladly pay the price asked for a good article—all they expect you to do is to show them where they get their money's worth.

It is easy to show the superiority in **Mueller** Furnaces—hundreds of our customers are doing it daily—and the increased margin of profit is very enticing.

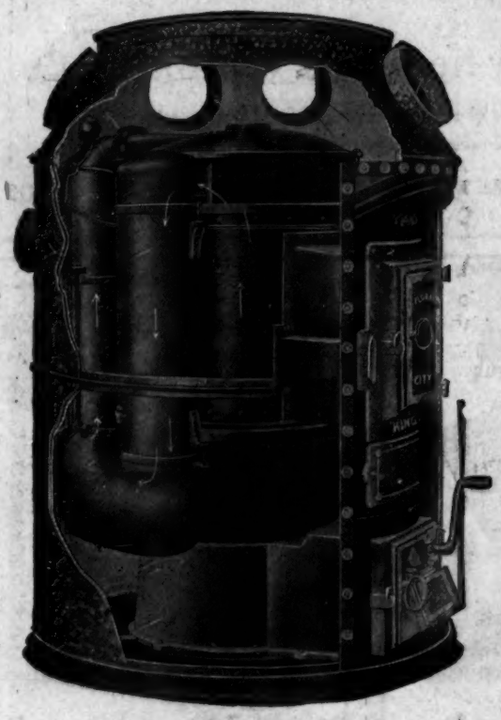
Mueller Furnaces are made in 50 styles and sizes—for all kinds of fuel—with single and double doors—every style is good.

Be wise—get the **Mueller** Agency.

L. J. MUELLER FURNACE CO.

ESTABLISHED 1857

191 REED STREET MILWAUKEE, WIS.



One of the many styles in which

Floral City Furnaces

are made

Write for our new Catalog just out. We can interest you.

Monroe Foundry & Furnace Co.
Monroe, Mich.

Perfect Light for the Country Home

DETROIT Combination Gas Machine

Here is a lighting system that not only means good profits for you but it will give the most satisfactory service to your customers.

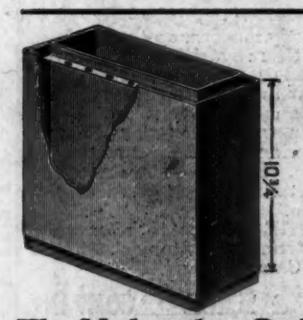
The best light for residences, schools, churches, factories, etc., especially where city gas or electricity are not obtainable.

This system of lighting is cheaper than any other form of light and gives perfect results. A gas plant complete in itself right in the house. Perfectly safe, as fuel is stored outside of the house—endorsed by the National Board of Fire Underwriters. The gas is in all respects equal to city coal gas, and is ready for use at any time without generating, for illuminating or cooking purposes. The standard for over 40 years. Over 15,000 in successful operation.

The days of kerosene lamps are over. Why not sell this light in your community? Write for information, prices, and 72-page book "Lighting for Evening Hours."

Detroit Heating & Lighting Co.,
206 Wight St. Detroit, Mich.

THE AMERICAN ARTISAN
Want Ads fill your wants.



The MICHIGAN SAFETY FURNACE PIPE COMPANY

Corner Brooklyn and Abbott Streets,
DETROIT, MICHIGAN

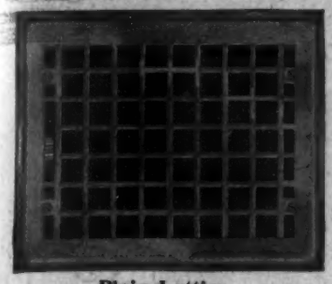
Manufacturers of A PERFECT HOT AIR FURNACE PIPE, SAFETY WALL PIPE, SINGLE PIPE and FITTINGS in both Tin and Galvanized Iron.

WRITE FOR OUR LATEST CATALOG.

We Make the Only Sectional Furnace Pipe in which the Inner Walls Form the Cross Walls.

No Wings to Pull Out. No Cleats to Bend.

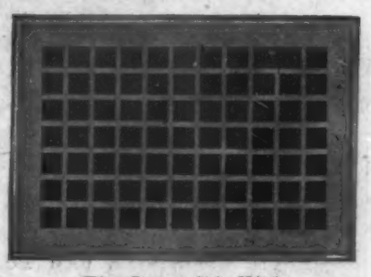
WROUGHT STEEL REGISTERS



Plain Lattice.

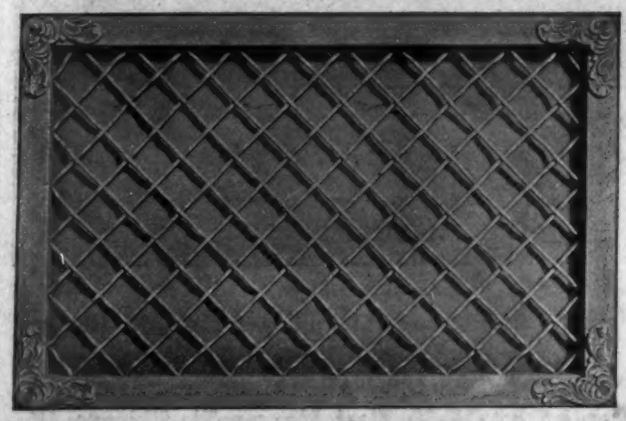
The kind specified by the U. S. Government. Roller Bearing Movement—never sticks or catches. Valves are Self-locking.

The kind used for shallow flues. Can be placed EITHERWAY—upright or across.



The Reversible Wafer

FERROSTEEL COMPANY, Cleveland, O.



WIRE GRILLES

Quality

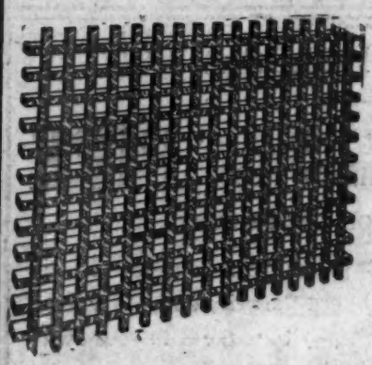
counts in wire grilles as well as in cast iron or stamped steel goods.

We manufacture all three kinds.

Send for prices.

Tuttle & Bailey Mfg. Company

New York Chicago Boston



THE PADGETT

Hard Wood Cold Air Faces and Ventilators

have become so popular that others are trying to imitate them. The genuine Padgett goods are made by a process discovered and known only by the owner and inventor. No imitation will give the service have the durability and beauty of the Padgett ventilators. Imitations are cheaper first cost, but much dearer in the end. Who wants a cheaply constructed ventilator in his home that will ruin the appearance of the room in a short time? Ask for the Padgett Hard Wood Cold Air Face, manufactured by

THE WOODEN VENTILATOR COMPANY

No goods genuine without the Company's stamp, watch for it.

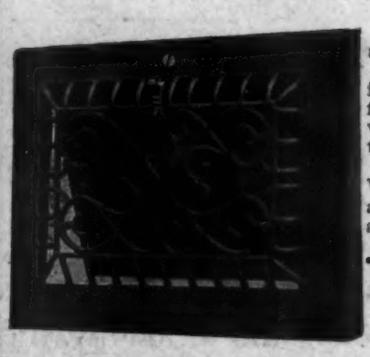
BRANCH WAREHOUSES:

155 East Lake St., Chicago, Ill. 1201-3-5 9th St., Kansas City, Mo.
827-837 N. St., Lincoln, Neb. 420 Deaderick St., Nashville, Tenn

MAIN OFFICE AND FACTORY, EAST PALESTINE, OHIO

Walworth Deflecting Wall Register

FOR BASEBOARDS



FOR SIDE WALL

Can be used on a "Double Head."

This register takes the place of the convex, and costs less money.

It takes up no room in the wall pipe, has a face of large open area, is made in standard sizes, fits regular stock sizes of fittings, is equipped with a wall frame and is attached to the pipe in the same manner as the ordinary valve register.

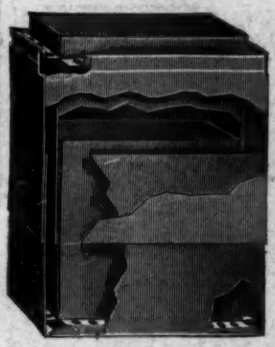
Our registers are made in THREE STYLES, Vertical, Horizontal and Baseboard. We are also makers of the famous SEMI-STEEL Floor and Convex Register, all sizes and finish.

LET US QUOTE YOU PRICES

The Walworth Run Foundry Co.

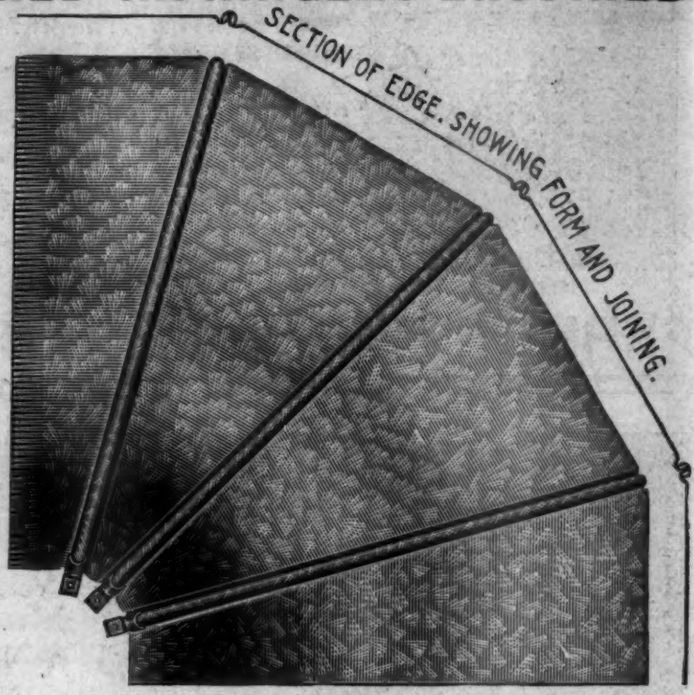
Largest Gray Iron Foundries. Estimates Furnished for Castings.
Filmore, Talcott and West 27th Streets
CLEVELAND, OHIO

PATENTS SUSTAINED—INFRINGERS ENJOINED



Adjustable Joint.
Pat. March 31, 1903.

In the Circuit Court of the U. S. Northern District of Ohio, at Toledo, on June 29th, 1909, patents on the articles illustrated herewith, were sustained, and the Perfection Furnace Pipe Co. of Toledo, Ohio, were enjoined from further manufacturing the same.



Patented July 15, 1902.

Other manufacturers have been and now are infringing these patents and steps will be taken promptly to protect our rights.

These patents cover the most valuable improvements in Double Pipe and Adjustable Elbow construction and buyers will serve their best interests by placing their orders with us or with our authorized agents and distributors, and thus avoid any possible liability.

Our prices and goods are always right and we solicit your orders not only for the articles referred to but for all other Excelsior Heating Specialties including Furnaces, Registers, Stove Pipe, Stove Pipe Elbows and Furnace Supplies.

CATALOGS AND QUOTATION SHEETS ON APPLICATION.

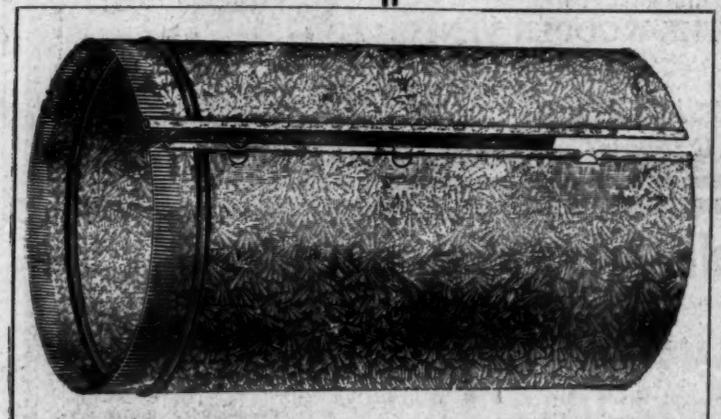
THE EXCELSIOR STEEL FURNACE CO. **34-44 West Monroe St., Chicago, Ill.**

A SMALL CRATE HOLDS A LOT

—OF OUR—

NESTED TIN AND GALVANIZED IRON PIPE

THAT'S A BIG SAVING ON THE FREIGHT



THE great demand for it has brought the price down to where it doesn't pay to make it in your own shop—that's some more money saved.

It can be put together at the job without any tools or stakes. The edges are locked by simply putting them together. Telescoping is impossible when the three notches, shown in the cut, are turned over the seam—it isn't even necessary to hammer down the seam.

When put together it presents a highly finished and mechanical appearance—that makes it the best on the market—

Our catalog tells more about it. *Write to-day.*

F. MEYER & BRO. CO.

PEORIA, - - ILL.

The Careful Sensible BUYER

is interested in finding out why the PERFECT WARM AIR FURNACES are universally accepted as the STANDARD of HEATING GOODS

RICHARDSON & BOYNTON COMPANY

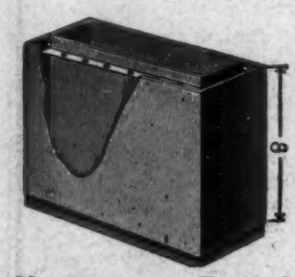
Chicago **New York** **Boston**

HANDY NESTED STOVE PIPE T JOINT.

Saves 90 per cent of room.
Saves 75 per cent of freight.
Does not damage in shipping.
Is stronger and neater than a hand made riveted T.
Is always ready for use.
Fastens together with two bolts.
Is a perfect fitting joint.

Never the rusty and unsighty T Joint usually offered for sale. Alway neat, clean and salable. Packed ten 12-inch joints in a crate 7x8 inches and 14 inches long, weighing 15 lbs. Made in Common, Polished Blue Steel and Planished Iron. **Ask your Jobber for Price and Samples.**

Kinne Manufacturing Co., Minneapolis, Minn.

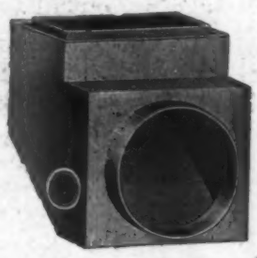


The MICHIGAN SAFETY FURNACE PIPE COMPANY

Corner Brooklyn and Abbott Streets,
DETROIT, MICHIGAN.

The STIFFEST and BEST Machine-made Pipe on the Market.

The only Sectional Furnace Pipe made in which the inner Walls Form the Cross Walls.



No Wings to Pull Out. **WRITE FOR CATALOG.** **No Cleats to Bend.**

OUR LARGE FACTORY INSURES PROMPT DELIVERY

DO NOT GET US CONFUSED WITH OTHER MANUFACTURERS

The Master Economy

Different and Far Superior To the Ordinary Heater

Has a Marked Individuality.

A Powerful Heater and Fire-Keeper.

Easily Controlled and Responds Promptly to its Regulating Devices.

Distributes the Heat Equally.

The Greatest Fuel Saver on Earth.

Burns Hard Coal, Soft Coal, or Coke.

Entirely Consumes Soot and Smoke.

No other Stove like it.

Entire Stove built to stand the Enormous Heat it produces — it will wear and last.

Can not be Duplicated or Imitated— Completely Covered by Patents.

A Handsome Stove — Artistic and Ornamental.

¶ Never in all the history of Stove making has a heater been placed on the market that has achieved the pronounced success right from the start that **The Master Economy** has, and we have guarded against its ever being equalled by completely protecting it by patents.

¶ A few of the features that have contributed so generously to this stove's success are outlined above. These statements are absolute facts, every last one of them.

¶ Dealers who handled this stove last year declare their intention of making it their leader this season, as it was their greatest seller and money maker, and the most satisfactory all-around stove they ever handled. This is not true of one or two of our agents, but all.

¶ We would be more than pleased to send you a number of fac-simile letters received from dealers all over the country since January, 1909, giving their opinions of **The Master Economy** and the opinions of their customers.

¶ We have in **The Master Economy** the highest achievement in the science of fuel combustion, circulation and heat radiation ever produced.
¶ Let us send you our new Catalog—the most attractive and interesting you ever saw. It contains a complete description of this stove.

Let Us Hear From You Today.

Comstock-Castle Stove Co., Quincy, Ill.

KANSAS CITY, MO. CHICAGO, ILL. MINNEAPOLIS, MINN.

ESTABLISHED 1880.

THE AMERICAN ARTISAN & HARDWARE RECORD

Representative of the Stove, Tin, Hardware, Heating and Ventilating Interests.

PUBLISHED EVERY SATURDAY.

TERMS OF SUBSCRIPTION IN THE UNITED STATES AND ITS POSSESSIONS, (Invariably in advance): ONE YEAR, POSTAGE PAID, $2.00. IN FOREIGN COUNTRIES INCLUDING CANADA, ONE YEAR, POSTAGE PAID, $4.00. Address all Letters, Communications, and Remittances to

DANIEL STERN, PUBLISHER AND PROPRIETOR, 355 DEARBORN STREET, CHICAGO, ILL.

Entered as Second-Class Matter June 25, 1885, at the Post Office at Chicago, Illinois, under Act of March 3rd, 1879.

CHICAGO, AUGUST 14, 1909.

Paper Money to be Redesigned.

A NUMBER of important changes in the designs on the paper money of the country are to take place soon. Secretary MacVeagh, Assistant Secretary Norton, and Director Ralph of the Bureau of Engraving and Printing have under consideration a general scheme for systematizing the designs of all issues of paper money in such a manner that the same portraits and emblems will appear on all notes of the same denomination. It can be stated authoritatively that a portrait of the late Grover Cleveland soon is to appear on all ten dollar bills.

Distinctive designs for one dollar, five dollar, twenty dollar, and fifty dollar bills, and perhaps those of even higher denominations, have been prepared. The two dollar bill may be abolished, it is reported. Its fate now hangs in the balance, there having been many complaints directed against it, owing to its tendency to stealthily slip in with its one dollar brothers and cause woe. If the two dollar bill is retained, it is certain that its design will be such as to make it flash out from a pile of one dollar or five dollar bills with a prominence that will permit of no mistake in its handling.

The Treasury officials are seeking suggestions from artists of the Bureau of Engraving and Printing, and from artists and experts outside the government service. They even have sent to Europe, it is stated, for new ideas by which the paper money may be improved in appearance.

Some Treasury officials are inclined to favor even a more radical change, and recommend that paper money be reduced about the size of French and Italian notes of smaller denominations. These notes are about three-fifths the size of the American kind, and are more convenient to handle.

By reducing the size of the notes a considerable saving could be effected in the expense of getting them out, it is said. It is realized that if this takes place the issues of bank notes eventually will have to conform. Inasmuch as $500,000,000 in bank notes have been printed recently and stowed away, the change in the size is somewhat of a question to consider.

In general it is the purpose of the Treasury officials to adopt new designs for different denominations and classes of paper money that are simpler and more artistic than the present ones. It is the feeling of the officials and of the artists that the present designs are altogether too elaborate, with too much scroll work, etc. More plain surface they believe, would greatly improve the appearance of the bills. Many new precautions are to be taken against counterfeiting.

Ex-President McKinley's portrait already is carried on bank notes of certain denominations and therefore will hardly be used to decorate the government issues. The portraits of other deceased Presidents and prominent Americans, however, may be looked for, bearing in mind that they will appear upon all classes of currency of an equal denomination.

The Pesky Fly.

THERE is not much danger that the campaign against the fly as a public enemy will assume such proportions that the species will be exterminated, or that there need arise a class of sentimentalists in defense of the particular members of that huge family of the Diptera against which sanitarians have declared war. A short time ago a New England entomologist thought it necessary to sound a note of warning against the possible peril of so disturbing the balance of nature that mankind would suffer more from the removal of the fly than it now does from its disease-spreading habits. Justice required that this protest should have a hearing, but even a casual review of the measures that are being taken do not inspire much confidence in the hearts of those who echo Artemus Ward's anathema against the fly.

That a great deal can be done, however, to reduce the number of flies, to protect them from contact with disease and to limit their filth-spreading propensities must be obvious from a moment's consideration of the conditions under which flies are bred and thrive. If it be true—and there is no reason to doubt the oft-repeated dictum of physicians and sanitarians—that the fly is "the barometer of the filth of the community," the first duty is the cultivation of cleanly habits, both in the community at large and in the domestic domain. Experience has shown that an immediate reduction of the number of flies has followed the cleaning up of rubbish heaps, the removal of manure piles and the adoption of sanitary methods. The protection of the fly from infection in turn requires the screening of houses and scrupulous care in the disposal of rubbish. Finally, the protection of man against the fly calls for the same strict screening of houses and the rigid enforcement of precautions against the access of flies to food supplies, whether in the house or in the market.

Some or all of these precautions will be neglected or scouted by the careless and the indifferent, but with the wider spread of accurate knowledge of the part which the fly actually plays in the dissemination of disease the public should be willing to enlist with

greater unanimity in the campaign planned by health authorities in this and other cities.

Uncle Sam's Year's Deficit $89,811,156.

THE Treasury statements issued on July 1, show the government receipts for the fiscal year ended June 30 to have been $604,432,846, disbursements $694,244,002, and deficit for the year $89,811,156. Treasury officials are pleased at the present showing of the government finances. Ordinarily a deficit in the government revenues of $89,811,156 would not be a matter of congratulation. Nevertheless, at the close of the fiscal year 1909 the Treasury officials express much gratification that the official estimate of a deficit of $114,000,000, made last December, has not been verified and are hopeful for a continuance of the improvement which has been especially noted during the last four months.

The customs receipts for the year aggregated $301,209,863, an increase, compared with last year, of $15,000,000. The internal revenues produced $246,329,063, a decrease of about $5,000,000. Miscellaneous receipts aggregated $56,893,919, a falling off of about $6,500,000. The civil and miscellaneous expenditures amounted to $164,288,538, an increase of $5,000,000 over last year.

The War Department expenditures aggregated $164,100,242, an increase of $40,000,000. The Navy account is the only item in the list to show a decrease, the figures for the year being $115,988,869, as against $118,780,233 for the year 1908. Pension payments for the year amounted to $161,689,423, an increase of about $8,000,000.

The expenditures on account of Panama Canal were $6,000,000 less than for last year, being $31,420,286.

Receipts from all sources were $3,250,000 greater and expenditures $37,000,000 greater than during the fiscal year 1908.

The June statement of the Treasury shows that at the close of the fiscal year, June 30, 1909, the public debt less cash in the Treasury amounted to $1,014,861,531, a decrease for the month of $6,268,079. The total receipts for the month were $56,857,376, and the disbursements $47,781,697.

It is fully expected that the new fiscal year will start with a series of monthly deficiencies, notably for July, when the new appropriations made by Congress become available. July last year resulted in a deficiency of $24,868,000. In July, 1907, there was a deficiency of $10,901,000 and in July, 1906, another of $13,511,000.

It was in view of the certainty of a deficiency for July that Secretary MacVeagh called on National depository banks for a return to the treasury of $25,000,000. The treasury working cash, now standing at about $42,000,000, will be raised by this call to about $67,000,000. This will be a comfortable working balance with which to enter upon the summer operations of the department, but will not be sufficient to carry the Treasury through the fall crop moving season unless the revenues show even greater improvement than has been exhibited recently.

In the event that the treasury should require additional funds the Secretary is authorized to issue either Panama bonds or treasury certificates of indebtedness under the war revenue act of 1898. The authority to issue Panama bonds is limited to about $45,000,000, while the certificates may be issued to an amount not exceeding $100,000,000.

The Great Crops of 1909.

THE largest crop of all grains ever raised in this country is promised by the August report of the Department of Agriculture, the total being estimated at approximately 4,881,000,000 bushels. On the basis of being marketed at current prices, the value of this crop, which is bound to be marketed at very high figures, is almost beyond comprehension, being placed at about $3,102,000,000.

These figures are so large that they put all others into utter contempt and make comparisons valueless, except as a matter of record. With figures of such magnitude it does not require an expert statistician to make it plain what this tremendous crop of cereals will mean to the American farmer and the business interests of this country. It means, beyond any question of doubt, that the American population, as a whole, is on the eve of the greatest period of prosperity ever known.

The turning of 4,881,000,000 bushels of grain into gold, amounting to more than $3,102,000,000, is hardly short of sensational, yet this is what the crop report means, and it will probably all be accomplished during the next twelve months.

Such an enormous amount of money going into the pockets of the American people in such a short time cannot help but set the wheels of commerce and industry to going at a rate never before witnessed. While this means almost untold wealth to the farmers of the country, it also means infinitely more to the laboring classes, as it will be an assurance against idleness for all that are willing and able to work.

The surplus stocks of grain in this country and many others have been practically exhausted, and with even such a large yield of grain as is promised it will not be sufficient to meet the world's requirements and leave much of a surplus before the beginning of the next crop year. Therefore, it is reasonable to believe that satisfactory prices will be obtained and that the various cereals will be marketed earlier than usual. The farmer, however, is more of a merchant now than formerly, and it need not be expected that he will sell his grain below what he thinks it is worth. He has been making money for several years and today is perhaps the most independent of American citizens. The time for selling his grain at another's price has passed, for a long time at least.

That we are on the eve of unparalleled prosperity is shown by the fact that our securities are nearly at the highest point ever reached—some at record levels. Our greatest industries are working at more than 90 per cent of their capacity and the railroads are now making active preparation for the heaviest business ever handled. This is because it was realized a month or so ago that the crops would be of almost unlimited value, and with money conditions in this country in such a satisfactory state, and with the characteristic

inclination of the public at large to possess the best of everything produced by our manufacturing interests, it may be safely said that nothing short of a calamity can prevent a period of plenty for several years to come.

It is only at such a time as the present that the average person realizes what the resources of this country are, but when it is shown what we can produce in the way of farm products alone, and only the most important are taken into consideration here, there is little wonder that the average American is optimistic and confident under the most trying circumstances.

RANDOM NOTES AND SKETCHES.

BY SIDNEY ARNOLD.

If you are a business man, having a pretty typewriter girl whom at times you may be disposed to send to make a collection in the form of a check, you may save yourself trouble and expense by looking a little into the law governing the acts of such an agent. Down in Indiana a business man addressed a note to a creditor, reading: "Mr. Beasley. Sir: I send your note by Miss Hawkins. You will please pay her the money due on the note and oblige me. The amount due is $77.65." Beasley drew his personal check for the amount and handed it over to Miss Hawkins, who at once went to the bank on which it was drawn, presenting the check at the teller's window. She was told that she would have to sign the payee's name on the back, which she did, and then received the money. The payee brought suit against the bank, judgment was rendered in favor of the banking house, and the payee took an appeal. In the Appellate Court strictures were laid upon the agent officiating in such capacity and the appellant was granted a new trial. In this finding the court quoted from authority to the effect that the power of such an agent is much restrained in the handling of commercial papers and especially with reference to indorsements. "An agent's acts making or transferring negotiable papers (especially by indorsement) are much restrained. It seems that they can be authorized only by direct authority, or by some express power which necessarily implies these facts, because the power cannot be executed without them." And again, "If an agent is authorized to accept checks in payment of the demand, he has no implied authority to indorse them and collect the money thereon and the bank paying the check so indorsed is still liable to the principal for the amount thereof." In reversing the judgment of the lower court and ordering a new trial the Appellate Court calls attention to everyone dealing with a special agent to find out from the principal how much of authority is delegated to that agent. Otherwise he deals with the agent at his peril.

* * *

The champion man crochet worker of the world undoubtedly is F. S. Thomas, a retired hardware merchant of Clinton, Wis. Mr. Thomas is 76 years old, but handier with his needle than most women. He makes lovely doilies, elaborate centerpieces, bedspreads and other pieces of fancy work that is reputed to equal the finest work that comes from abroad. Mr. Thomas conducted a hardware store at Clinton for many years. Until he became old he knew no more about fancy work than any other hard-headed business man. A few years ago his health failed and he was obliged to retire from business. He was confined to the house, and as he could not read all the time he found the days long and tedious. Finally he began to crochet merely as a recreation. He soon became an artist with the needle, and some of his larger pieces are said to be valued at hundreds of dollars. He now earns a good income, and last year, it is stated, he was offered a salary by one of the State Street stores in Chicago to "demonstrate" in the lace department, but he declined to place himself on exhibition. I don't think it will be disputed that the average hardware man possesses more than the usual amount of versatility. I have known instances where hardware men have become ministers of the gospel, and good ones at that, where they have even dared to venture into the newspaper business and have made a success of it (although, in the latter instance, it would look to me like going from the sublime to the ridiculous), and have engaged in other pursuits, none of which, however, could be credited with causing them to be branded as "malefactors of great wealth." Crochet work may look good to Brother Thomas, and dispensing medicine may make a hit with others of the craft, but give me a hardware store in a live little town and my ultimatum to the retail mail-order houses would be, "Lay on, McDuff, and damned be he who first cries, Hold! Enough!"

* * *

An American inventor has so far perfected the monorail system of railroad transportation that he has succeeded in convincing ordinarily conservative and sane government authorities that a revolution in transportation methods is impending, which will hardly be less significant than which was caused when the steam railroad took the place long held by the stage coach and the canal. British, American and German specialists in science and mechanics have for years been at work on the monorail idea, and an Irishman named Brennan has demonstrated, to the satisfaction of the scientists, that his project will work. It has until now been merely a question of whether it was worth while; or whether it would not cost so much as to be of no commercial value. This element of commercial utility is believed to have been put into the project by the American inventor. Recently he laid his plans before a member of the Interstate Commerce Commission, and explained what he had done and proposed to do. Briefly, he convinced his listener that he could send a train across this continent at the rate of 200 miles an hour with less expense than would be required to haul a train of similar weight by present methods in five days; that his plan was perfectly safe; that it would operate on a railroad which would cost about two-thirds as much per mile for cost and maintenance as a standard road, and that his system will haul freight quite as well as passengers. The possibilities of such a system have naturally attracted a good deal of attention among people who have known of this incident. That it should have made a real impression on a man accustomed to deal with cranks and forget their projects is the unusual feature of it.

News Siftings

The Gas Range & Heating Co., Los Angeles, Cal., has been incorporated with a capital stock of $50,000. The incorporators are G. W. Lawyer, Thaddeus Lowe, N. H. Campbell, George H. Miner and O. W. Orcutt.

B. D. Dunham, of the U. S. Stove Repair Co., 13-15 South Third Street, Minneapolis, Minn., called at the offices of THE AMERICAN ARTISAN during the week. Mr. Dunham reports the outlook for business this fall exceedingly good.

The Cartga Foundry Company, Cartersville, Ga., has been incorporated with a capital stock of $12,000 and will erect a plant for the manufacture of stoves, ranges, castings, etc. The officers of the company are: President, J. W. Vaughan; vice-president, J. W. Smith; secretary, Watt H. Milner; general manager, W. A. Smith.

It is understood that the Art Franklin Stove Co., recently incorporated by persons at Columbus, Ohio, and which took over the property of the Franklin Stove Company, which went into the hands of a receiver some time ago, will locate its plant at Westerville, Ohio. Harry Hance of Hance Brothers Company, who operate a foundry at Westerville, will be general manager of the new company.

Silas W. Lamoreaux of the Beaver Dam Malleable Iron Co., and at one time president of the Beaver Dam Malleable Iron Range Co., Beaver Dam, Wis., died on August 5, after a long illness. He was born in New York state in 1843 and went to Wisconsin when a boy. He was president of the German National Bank of Beaver Dam and was noted for his philanthropy. He was twice elected to the Wisconsin Legislature and was afterwards elected County Judge.

Stuber & Kuck, Peoria, Ill., say that their "Eclipse" Nested Stove-Pipe Thimble is the best on the market, that it saves 80 per cent of room, is stronger than a hand-made riveted thimble, and is always ready to hook together. It is made so that the lug passes through two slots and is then tied, the lug being always on top, and therefore not an objection to the entering stove-pipe. "Eclipse" nested stove-pipe thimbles are packed one dozen in a box. When writing for prices, kindly mention THE AMERICAN ARTISAN.

The Wm. Connors Paint Mfg. Co., Troy, N. Y., state that their "American Seal" Putty makes tight joints that will stay tight. They say that thousands of manufacturers and dealers pronounce it superior to any other. "American Seal" stove putty is made with pure oil and it adheres firmly, drys hard and is guaranteed not to shrink or peel. For mounting and repairing stoves, ranges and furnaces it is said to be unsurpassed. It is sold in the same size packages as the company's "American Seal" Asbestos Furnace Cement. When writing for prices, kindly mention THE AMERICAN ARTISAN.

The Portsmouth Stove & Range Company, Portsmouth, Ohio, report that their "Equity" Fire-Back, "which will fit any make of stove," is attaining a marked degree of popularity. It can be used at any size between the extremes of 7 and 21 inches. In order to make it ready for use it is only necessary to slacken the bolts on the back side, move the extension plates to the length and width desired and then tighten the bolts. The Portsmouth Stove & Range Company state that this specialty will be found convenient and profitable for the jobber, dealer and consumer. When writing for prices, kindly mention THE AMERICAN ARTISAN.

The Enterprise Pattern Works, 82 Clinton Street, Detroit, Mich., has been organized for the purpose of manufacturing all kinds of wood and metal patterns, making a specialty of stove and furnace patterns. Those interested include J. L. Horn, formerly with the Detroit Pattern Works and the J. L. Horn Pattern Works, and who has had 20 years' experience in the business, and O. E. Techow, with 18 years' experience in the stove and machinery line. The Enterprise Pattern Works have installed up-to-date machinery in their plant and are now in a position to fill orders promptly and will be pleased to submit plans and estimates.

The Security Stove & Mfg. Co., Kansas City, Mo., are distributing a catalogue illustrating and describing "Security" Stoves and Ranges. The company report a very fair demand for their goods in the section of the country in which they are located, and they expect to increase their facilities in the fall by erecting a two-story brick warehouse, 50x180 feet. The company's catalogue contains 64 pages replete with numerous illustrations of the "Security" line. They are now putting on the market the "Security" Anti-Scorch Hot Blast Cover, by means of which the coal is turned into coke and the smoke consumed, which prevents the flues of the stove from becoming clogged with soot. It is made in two parts, the bottom boiling cover and the top anti-scorching cover.

The plant of The Born Steel Range Co., Cleveland, Ohio, covers six acres and is devoted exclusively to the manufacture of steel plate ranges, heating stoves and kitchen appliances. The company state that it is not a mere assembling shop, but a thoroughly equipped modern establishment where they make the goods from the raw materials. They say that with superior facilities and the best location they are in a position to furnish their customers with excellent values in the line which they manufacture. No order, they say, is too large and no specification too difficult for them to handle. The trade is requested to write The Born Steel Range Co. for a set of their catalogues and their agency proposition, both of which, they say, will prove extremely interesting. When writing, kindly mention THE AMERICAN ARTISAN.

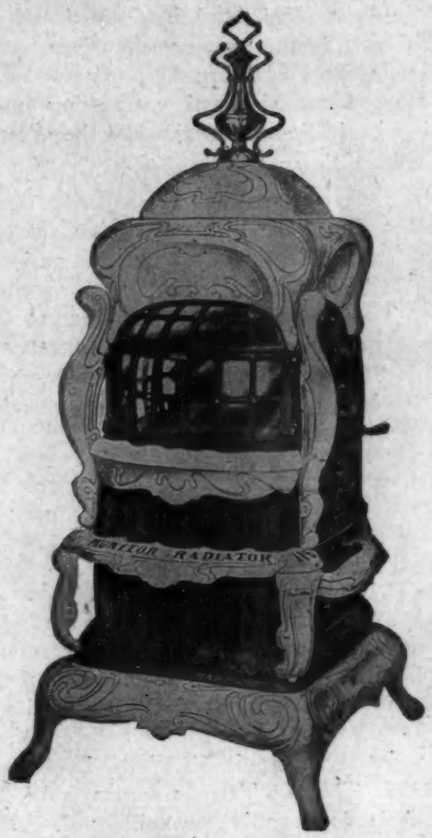
THE "EXPRESS" GLOBE OR CYLINDER STOVE.

The Mt. Penn Stove Works, Reading, Pa., and 111-113 North Second St., Philadelphia, Pa., are calling the attention of the trade to their "Express" Globe or Cylinder Stove with round or extended top and with Duplex or center-discharge grate. This stove is made in four sizes and is declared to be a leader in its line.

The manufacturers state that it is strictly modern and that it is guaranteed to give unlimited satisfaction. They request the trade to write for their catalogue illustrating and describing in detail the complete "Penn" line. When writing, kindly mention THE AMERICAN ARTISAN.

THE "MONITOR" RADIATOR.

The Monitor Stove & Range Co., Cincinnati, O., state that dealers are finding their "Monitor" Radiator, here illustrated, to be an exceptionally good seller. It is claimed for this stove that it has 1,683 square inches more radiating surface than other baseburners. The front part of the stove is always the hottest, and the heat is radiated into the center of the room direct.



The "Monitor" Radiator.

The fire passes down the five front flues, then under the stove and up the back flue to the chimney. The "Monitor" radiator has hot air flues of 946 square inches capacity, which can be conducted to heat rooms above or utilized in heating rooms on the lower floor. Complete descriptive matter will be furnished upon request. When writing for it, kindly mention THE AMERICAN ARTISAN.

THE "BEAVER" OAK STOVE.

The Danville Stove & Mfg. Co., Danville, Pa., have put on the market the "Beaver" Oak Stove in single and double heater style, adapted for bituminous and anthracite coal or wood. The design, finish and construction of this stove is said to be the most modern in every respect, making it very handsome and very desirable. Only the best material and workmanship are said to be used in its construction. It has a heavy fire-pot, and there are self-locking handles and screw plate on all doors. The draft is easily regulated, and the joints are guaranteed to be air-tight. The body is made of high-grade Planished steel. The outer casing on the double heater style, is made from the best quality Planished iron. The nickeled parts include swing cover, top ring, name plate, foot rail, skirting and feet, and knobs. The grate is of the flat or Triplex style. The Danville Stove & Mfg. Co. say that the "Beaver" Oak is a sales builder, trade winner and a profit maker. They request the trade to write for catalogue. When writing, kindly mention THE AMERICAN ARTISAN.

"FOSTER'S AGENT" STEEL RANGE.

The Foster Stove Co., Ironton, Ohio, have put on the market "Foster's Agent" range which they state is their newest and best steel range with all the latest and best selling features. The body is made of heavy Wellsville polished blue sheet steel, closely riveted. It is lined with asbestos millboard, thus retaining the heat and making the body of the range practically indestructible. The back flue on this range is all cast iron which makes this part last as long as the body of the range. The fire-box is of the latest improved construction which permits the removal of all the linings, including Duplex grates, without disconnecting the range water-front from the pressure boiler. The top of the range is cut into four pieces, and the damper may be removed without disturbing the top in any manner. "Foster's Agent" is made in 16, 18 and 20-inch ovens, all ovens being 13 inches high and 21 inches deep. When writing for prices, kindly mention THE AMERICAN ARTISAN.

THE "PALACE RUBY" BASE HEATING VENTILATOR.

"An up-to-date heater with distinctive and valuable features." This is what the South Erie Iron Works, Erie, Pa., say of the "Palace Ruby" Base Heating Ventilator that they are now offering the trade. This stove is of handsome appearance, and has full nickeled trimmings, ornamental urn, extra heavy fire-pot, full inside measurements, large magazine, large bailed ash-pan and combination Duplex and shaking grate. The "Palace Ruby" takes the cold air from the floor, passing it up through the bottom and as it passes though the stove is heated to a very high degree before being distributed equally throughout the room. A very important feature of this stove is that by connecting an air duct to the collar on the bottom of the ventilator to take the cold air from the outside the "Palace Ruby" can be made to operate on the same principle as a furnace. The South Erie Iron Works are in a position, they state, to offer attractive inducements to dealers, regarding this stove. Complete descriptive matter will be furnished upon application. When writing for it, kindly mention THE AMERICAN ARTISAN.

The good clerk need not worry. If he is a business producer, other store owners will be after him. He is bound to find his level.

The Hardware Record.

THE AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing western hardware and metal prices corrected weekly. You will find these on pages 56 to 61 inclusive.

A plant for the manufacture of bolts will be installed in the rolling mill of the Tennessee Coal, Iron & Railroad Co., at Bessemer, Ala.

The Plainview Wire Fence Co., Plainview, Tex., has been incorporated with a capital stock of $20,000 by T. K. Blewett, L. E. Speed, W. Bain and others.

The Northwestern Novelty Co. of Morris, Ill., has been incorporated with a capital stock of $3,000, to manufacture hardware specialties. The incorporators are Hayes & Murray, Morris.

The Speer Hardware Co., Fort Smith, Ark., will erect a new six-story building at a cost of $75,000 for its wholesale business. The building will be constructed of red brick and white stone.

The Wood-Peck Hardware Co., Newburgh, N. Y., has been incorporated with a capital stock of $40,000, to manufacture hardware and hardware supplies. The incorporators are: Guy S. Wood and Anna B. Wood, Newburgh, N. Y., and Frank B. Peck, Cornell, N. Y.

The Rogers-Bailey Hardware Co., Chattanooga, Tenn., has been incorporated with a capital stock of $25,000, by persons formerly connected with the Tom Fritts Hardware Company of Chattanooga. The incorporators of the new company are the following: A. H. Rogers, L. D. Bailey, R. L. Ramsey, J. C. Parks and J. A. Kuss.

The Cleveland Hardware Company, Cleveland, Ohio, has installed a library in its plant for the benefit of its men and women employes, the non-fictional works embracing volumes of sociology, science and history. Sociology is being studied by many of the male employes while others have taken up the study of electricity. The books are taken home and read.

The Bering-Cortes Hardware Co., Houston, Tex., have increased their capital stock from $100,000 to $250,000, the object being to make provision for their rapidly increasing wholesale business. At a recent directors' meeting the following officers were elected: President, J. C. Bering; vice-president, J. H. Schumacher; treasurer, W. A. Cortes; secretary, G. W. Rulfs.

Robert E. Steed, for 30 years or more connected with the Dunlap Hardware Company, Macon, Ga., wholesale hardware dealers, died at Macon on August 2, from a stroke of apoplexy sustained while he was at work in his office. He had been secretary and treasurer of the Dunlap Hardware Company for a number of years and was one of the most prominent business men of Macon. A widow and several children survive him.

The Jackson Wire Mfg. Company, Worcester, Mass., has been incorporated with a capital stock of $75,000, to manufacture and deal in wire and wire products. The officers of the company are: President, Chester S. Ellis, 48 Waldemar Avenue, Winthrop, Mass.; treasurer, George W. Jackson, 54 Fruit Street, Worcester, Mass.; clerk, J. Arnold Farrer, 73 Tremont Street, Boston, Mass.

Albert A. Pope, the pioneer bicycle manufacturer of the United States, and well known as one of the first advocates of the existing good roads system, died at his summer home in Cohasset, Mass., on August 10. He had been in ill health for months due to a breakdown of his nervous system, which, it is said, followed the financial embarrassment of his bicycle company, the Pope Manufacturing Co., with headquarters at Hartford, Conn. He was born in Boston in 1843.

F. W. Hurty, formerly of the Hurty-Simmons Hardware Co., Minneapolis, Minn., who disposed of his interests in that company over a year ago, is now associated with the Hackett-Walther-Gates Hardware Co. of St. Paul, Minn., and, it is stated, will take an important part in the management of the company's wholesale business. During the past year Mr. Hurty enjoyed a well-earned vacation, traveling extensively with his wife in South America and the West Indies.

The Denning Wire & Fence Co., Cedar Rapids, Iowa, report an increasing demand for their well-known Denning fence. This fence is made on scientific and practical principles and in various sizes, weights and meshes for stock, hogs, poultry and rabbits. The company request the trade to write for catalogue and prices on lawn and cemetery fencing, gates, barb wire, nails, staples, portable corn cribs and grain bins. When writing, kindly mention THE AMERICAN ARTISAN.

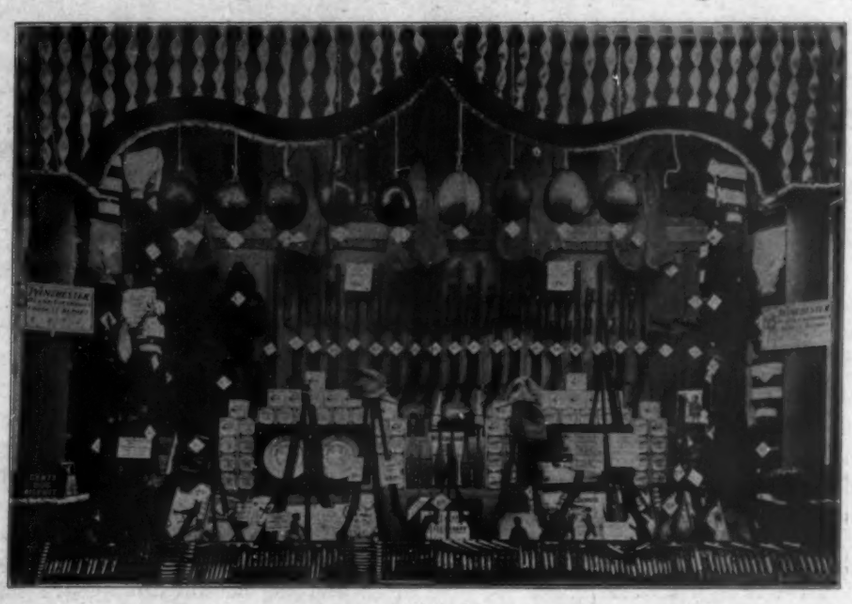
The Florida Retail Hardware Association will hold its annual convention at Jacksonville, Fla., on October 14, 15 and 16. The association was organized at Jacksonville on October 28, 1908, and since that date has made great progress. The membership now includes nearly 100 representative retail hardware firms in Florida, and prospects are said to be good for the addition of many more new members at the coming convention. The officers of the association are as follows: President, M. E. Grouber, West Palm Beach; vice-president, B. F. Watts, Leesburg; treasurer, D. L. Thomas, Tampa; secretary, W. K. Jackson, Lakeland; executive committee: C. F. Smedley, Jacksonville; R. E. McNeil, Live Oak, and M. B. Bates, Quincy.

Wm. T. Johnson, once a prominent hardware merchant of Chicago, and for many years a member of the hardware firm of Kellogg, Johnson & Bliss, which business was about 20 years ago bought out by Bullard & Gormley Company, Chicago, died at his residence, 51 Alice Place, Chicago, on August 8, at the age of 74 years. The deceased was born in Westmoreland, N. Y., but came to Chicago to live on becoming connected with the Mason Iron Works of Chicago in 1853. The hardware business of Kellogg, Johnson & Bliss continued for 20 years or more after its formation. In 1878 Mr. Johnson was elected to the state senate of Illinois, where he served until 1880, when he became treasurer of Cook County. Under President Garfield, Mr. Johnson was an Indian Commissioner. He is survived by a widow and two daughters.

AN ATTRACTIVE DISPLAY OF SPORTING GOODS AND CUTLERY.

A window display entered in THE AMERICAN ARTISAN'S recent Hardware Window Display Competition by B. W. Haverfield, 911 Houston Street, Fort Worth, Tex., received Honorable Mention from the judges of the contest. The goods displayed in the window consisted mainly of guns, loaded shells, athletic goods and cutlery. The window was 10 feet 6 inches long, 8 feet high and 5 feet deep. The color scheme was red, white and green.

The only frame work necessary for this display was the arch for the top and columns supporting same. The arch was sawed out of ¾-inch poplar lumber and supported in the center by the narrow strip of wood across the top and ends, and wired to the top of the window. The arch was supported at each end by columns made of 8-inch tin furnace pipe covered with asbestos paper. The base of the columns was made of loaded shell boxes covered with white cheese cloth.



Honorably Mentioned by the Judges in THE AMERICAN ARTISAN'S 1909 Hardware Window Display Competition—Submitted by B. W. Haverfield, 911 Houston St., Fort Worth, Tex.

The columns and arch were painted with cold water red paint, the base of the columns green, and the whole trimmed with white puffing and crepe paper.

Two steps in the rear of the window, 12 inches and 14 inches high, covered with red bunting, gave ample space for displaying small goods and elevating same in window. The back of the window was covered with plaited green bunting. The two transparencies near the center of the window, "Safe Sure" and the "Two Large Shells," were mounted upon glass in a small oak frame. These were set up in the window, back of which was an empty store box of suitable size containing an electric light, and around each transparency were displayed loaded shells. The pocket knives shown in the foreground were mounted on two sample boards and each one priced. Sample boards were made of ½-inch poplar lumber, 7½ inches wide, and covered with green plush.

One of the chief attractions in this display was the many novel features of gun productions, each one bearing a descriptive card such as: "6 M/M Lee Straight Pull, Navy Rifle; carries three miles accurately, and at 100 yards will pass through 52 inches of oak. 38/55 Cal. Schuetzen Rifle—'President Roosevelt's Favorite.' 30 Cal. Army Model, Rapid Fire Musket with Bayonet; shoots three shots per second from the shoulder with aim, velocity 2400 ft. per second. 12 gauge Riot Gun, 6 shooter; each discharge contains 9 buck shot and will go through 4 inches of oak. 45/70 Repeating Rifle. 30 Cal. U. S. Army Cartridges. Soft Point Bullets, before and after using."

On the whole this display attracted a great deal of attention and sold a great quantity of the goods displayed, according to Mr. Haverfield.

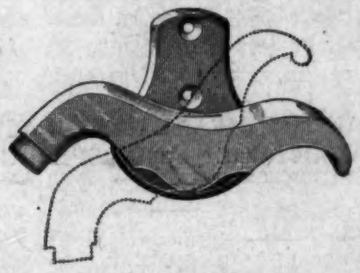
AMERICAN HARDWARE MANUFACTURERS' ASSOCIATION AND "SPECIAL BRANDS."

Secretary F. D. Mitchell of the American Hardware Manufacturers' Association is sending out to members a letter dealing with the subject of "Special Brands," together with a reprint in pamphlet form of the address on this subject delivered by Julius C. Birge of the Ames Shovel and Tool Company, St. Louis, Mo., at the June convention of the Hardware Manufacturers at Pittsburg. Secretary Mitchell has now ready for distribution 10,000 copies of Mr. Birge's address, and he will be pleased to furnish, free of charge, as many copies as any one may wish. In his letter to members of the association, Secretary Mitchell points out that it is the purpose of the association to encourage as many industrial associations as possible to adopt a practice among their members of insisting upon "manufacturers' brands" when purchasing supplies, thus showing by their actions that they really mean to discourage special branding of goods. The cooperation of the members of the Hardware Manufacturers' Association is solicited by Secretary Mitchell in a request that they insist that all of their supplies be furnished them under "manufacturers' brands" and not under "special brands" with the identity of the maker unknown. Copies of the

resolution adopted by the Hardware Manufacturers at the Pittsburgh convention, in which the "special brand" business is decried, are also being distributed by Mr. Mitchell.

THE "EMPIRE" DOOR HOLDER.

The Caldwell Mfg. Company, 41 Jones Street, Rochester, N. Y., have put on the market the "Empire" Door Holder, shown in the accompanying illustration. This device is of very substantial construction, and is

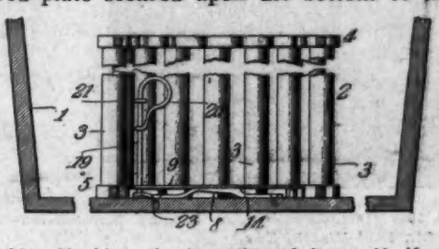


"Empire" Door Holder.

said to exert 50 per cent more pressure on the floor than the ordinary door holder. It is easy to apply and easy to operate. Complete descriptive literature may be had upon application. When writing for it, kindly mention THE AMERICAN ARTISAN.

A NEWLY PATENTED WASHING MACHINE.

James H. Knoll, Reading, Pa., manufacturer of the well-known "Queen" Washer, was on July 27 granted a United States patent on a washing machine, here illustrated. The application was filed on June 15, 1908. Combined in the machine are a tub, an apertured plate secured upon the bottom of the tub,



Washing Machine, the Invention of James H. Knoll, Reading, Pa.

a rubbing cylinder comprised of a pair of heads each in the form of an annular series of integrally connected open rings, and rods seated at their ends in the rings. An integral bar extends diametrically across the lower head. Means are carried by one of the rods and engage through the bar and with the apertured plate for locking the cylinder against rotation.

HARDWARE DELIVERY WAGONS.

The Sycamore Wagon Works, 109 Edwards St., Sycamore, Ill., report an increasing demand for their well-known hardware delivery wagons. The concern states that it has a delivery wagon that can be relied on to give efficient service. The body is 20 inches from the ground and full width. The wheels, though regular height, will, nevertheless, turn short. The wagon is easy to load and unload. It is constructed with regard to durability, and is said to be in every respect a most satisfactory vehicle. When writing the Sycamore Wagon Works for complete catalogue, kindly mention THE AMERICAN ARTISAN.

A NEW JOINT FOR FOLDING RULES.

To The Stanley Rule & Level Co., New Britain, Conn., has been assigned a United States patent on a joint for folding rules, which was recently granted to Christian Bodmer, New Britain, Conn., the application having been filed on December 7, 1908. In the rule joint are combined two body plates, one of the same having formed across its pivot center and along the longitudinal middle line a recess, the recess having a laterally enlarged locking recess at each end, the other plate having a corresponding projection enlarged at one end and arranged to frictionally interlock in a recess of the first mentioned plate. There are also a pivot, and a spring co-operating with the plates to cause the same to bear frictionally against each other.

Recently Patented Joint for Folding Rules.

SAWS IN GERMANY.

Consul-General Robert P. Skinner, of Hamburg, reports as follows on saws in Germany:

Although manufacturers of saws in the United States are paying little attention to this market, the superiority of the American saw has created a considerable German demand for it, and one which special effort could greatly increase. The duty on blades for circular band, and fret saws is $4.76 per 220 pounds, and on other saw blades and handsaws $3.57 per 220 pounds, both rates being the same under the maximum and minimum schedules, and so moderate as to make it entirely possible to dispose of American goods in competition with domestic and other foreign manufactures.

It is generally recognized in the trade that the steel used in American saws is particularly fine in quality and that our manufacturers have set a standard to which the manufacturers of all other countries are trying to attain. One large German concern, the largest, in fact, now claims to be able to deliver saws equal in quality to those imported from America. Generally speaking, however, manufacturers are devoting themselves to the production of the cheaper grades, in the making of which they have the advantage of very low-priced labor.

An active importer of American goods in Hamburg states that the sale of American saws could be doubled readily if American manufacturers, instead of intrusting their representation to general exporting and importing firms who handle 10,000 articles, would give it to an agent making a specialty of a few hardware lines. In spite of their high price, American circular saws are bought in fair quantities, their excellent qualities overweighing all other considerations. It is suggested that the distribution of free samples in the German sawmills for trial purposes would probably result in a large increase in the business, which is now shared by two celebrated American firms only. American hack-saw blades, although worth about one-third more than German blades, are readily sold

owing to their special temper, and this business is equally susceptible of large increase.

In the band and web saw trade cost price remains the first consideration, and the prospects for increasing American trade in this branch are not believed to be particularly bright. American butcher saws are used almost to the exclusion of all others in Hamburg, but they are not so well known in the interior and have not been pressed for sale in the thousands of local markets. French band saws have a specially hard and even temper and for many years have been imported into Germany on a large scale. Within the last ten years American band saws have made considerable progress.

In the production of low-priced saws for indiscriminating buyers American firms can scarcely be expected to compete with German houses, and, for that matter, the German saw manufacturers themselves are at a disadvantage when they undertake to compete with the products of German house labor, organized and controlled by various commercial houses at Remscheid. These firms select favorable moments when the peasants have few occupations and then distribute metal and wood among the cottagers, who assemble and finish the parts at odd moments in their own homes upon terms entirely beyond the reach of any American manufacturer. Saws of this cheap description are delivered in the cottages as blanks, leaving nothing to be done other than to cut the teeth and attach the handle. Wages are frequently paid in advance, and the net result is that saws (of which a sample is on file in the Bureau of Manufactures) are sold at wholesale, with a profit, for something less than 10 cents each; or, to be exact, $1.19 per dozen, less 2 per cent, packed for export f. o. b. Hamburg.

The sample which has been forwarded resembles the ordinary American handsaw, and bears the words in English stamped upon a brass disk in the handle "Warranted best tempered" and upon the blade "Warranted cast steel."

American manufacturers should be encouraged to maintain their policy of manufacturing metal goods of the highest quality possible and under their own names and marks, so that the ultimate buyer can rest under no possible doubt respecting the nature of his purchase.

In the domain of merely cheap products our manufacturers are under an insuperable disadvantage as respects labor cost, and their success must depend therefore upon intrinsic merit rather than price. The placing of any marks or words upon merchandise suggestive of an untrue origin, although it may be immediately profitable, must sooner or later bring about a reaction. It is of the utmost importance that American firms should establish reputations which can not be destroyed the instant importers discover another manufacturer disposed to make a small concession in price, as is the case with these saws sent to South America and elsewhere.

The imports of handsaws and saw blades into Germany in 1908 were as follows: Blades for circular, band, and flat saws, 89 tons, of which 40 tons were from France; other handsaws and saw blades, 74 tons, of which 29.4 tons were from the United States, against 47.2 tons in a total export of 79.6 tons in 1907.

RETAIL HARDWARE DOINGS.

NEW FIRMS AND CORPORATIONS.

Abilene, Tex.—The Over Hardware Co. has been incorporated with a capital stock of $25,000 by R. L. Over, J. A. Nobles and E. A. Balch.

Hattiesburg, Miss.—The Hattiesburg Hardware Co. has been incorporated with a capital stock of $30,000. The incorporators are: N. H. Howell, M. J. Fairley and Neil Fairley.

Memphis, Tenn.—Singleton, Henry & Co. have opened a new hardware store at 174 South Main street.

Bay City, Tex.—Doubek & Hawkins will open for business at an early date.

Plainfield, Wis.—J. M. Manley will engage in the hardware business here.

Milton, Vt.—A new hardware store will be opened on River street in the near future.

Carlisle, Ark.—The Robertson-Myers Hardware Co. has engaged in the hardware business here.

BUSINESS CHANGES.

Taylorville, Ill.—Ed. Winslow of Johnson township has purchased the store of the Jester Hardware Co. and will take possession at once.

Allerton, Iowa.—A. L. Reed has disposed of his hardware store to Dr. Ellis of Powersville, Mo.

Tiro, O.—Will Frazee of this place and Charles Korner of Bucyrus have purchased the hardware establishment of Wm. Morrow.

Crandon, Wis.—Fred Major has retired from the Crandon Hardware Co. and the business will be conducted by Fred and Arthur Vine.

Milton, Wis.—Starks & Johansen have disposed of their hardware business to W. B. Maxson.

Terre Haute, Ind.—Mr. Ellis will be sole owner of the hardware firm of Risinger & Ellis, which has dissolved partnership.

Maryville, Tenn.—John Gamble has disposed of his hardware business to R. B. McKeehan.

Canton, Ill.—The firm name of the Gardiner Hardware Co. has been changed to the Mason Hardware Co. R. L. Mason is president of the company.

Woodward, Okla.—Mr. Lincoln has purchased the hardware establishment of Mr. Key.

Pratt, Kan.—B. F. Dodson has sold half an interest in his hardware store to his son, Bert Dodson, and the business will be conducted under the firm name of Dodson & Dodson.

Elk Point, S. D.—H. G. Smith has purchased the hardware stock of Wm. Hanson, which was recently sold to J. A. Guenther of Sioux City.

Wichita, Kan.—The Hill Hardware Co., 1023 West Douglas avenue, has been purchased by A. G. Breese.

Gove, Kan.—J. F. Mendenhall has disposed of his hardware store to E. W. Simpson.

Castlebury, Ala.—The Skinner Hardware Co. has succeeded the Castlebury Furniture Co. The management will remain unchanged.

Lufkin, Tex.—The Lufkin Hardware Co. has been succeeded by W. M. Glenn & Co.

Kenterville, Idaho.—Hans Pederson has succeeded Schmidt & Pederson.

Atlanta, Neb.—Hedlund & Reed have been succeeded by C. A. Hedlund.

Walla Walla, Wash.—The Andrew Hardware Co. has sold its hardware business to Hatch & Bryan.

MISCELLANEOUS.

Fond du Lac, Wis.—J. J. Klock has moved his tinshop into the building formerly occupied by A. G. Haynes.

Guttenberg, Iowa.—Julius Overbeck is building an addition to his hardware store on Front street.

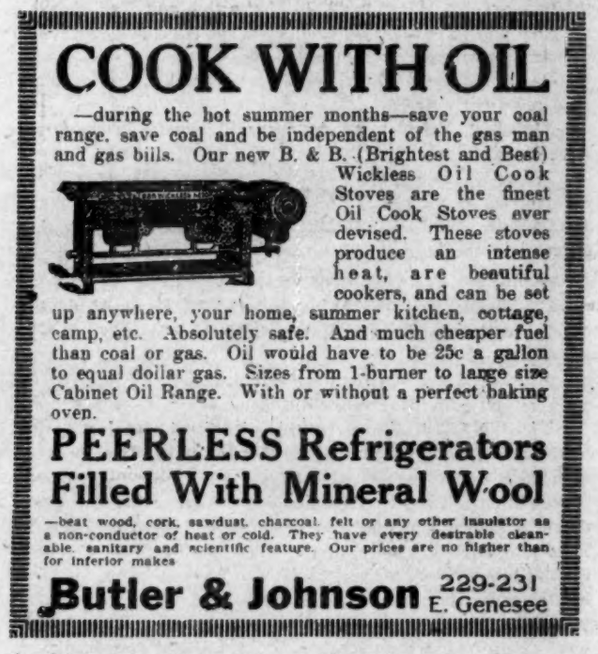
Morrellville, Pa.—Fire damaged the hardware store of Frank Alter, 83 Fairfield avenue.

Belfast, N. Y.—The hardware store of H. W. Loomis was destroyed by fire.

Advertising Department

Our readers are invited to send in copies of their advertisements in the local press for criticism. All communications should be addressed to the "Advertising Department" of THE AMERICAN ARTISAN.

The ad writer for Butler & Johnson, of Syracuse, N. Y., certainly knows how to write an advertisement which is both catchy and convincing. An example of his ability, which we are here illustrating, deserves


COOK WITH OIL
—during the hot summer months—save your coal range, save coal and be independent of the gas man and gas bills. Our new B. & B. (Brightest and Best) Wickless Oil Cook Stoves are the finest Oil Cook Stoves ever devised. These stoves produce an intense heat, are beautiful cookers, and can be set up anywhere, your home, summer kitchen, cottage, camp, etc. Absolutely safe. And much cheaper fuel than coal or gas. Oil would have to be 25c a gallon to equal dollar gas. Sizes from 1-burner to large size Cabinet Oil Range. With or without a perfect baking oven.
PEERLESS Refrigerators Filled With Mineral Wool
—beat wood, cork, sawdust, charcoal, felt or any other insulator as a non-conductor of heat or cold. They have every desirable cleanable, sanitary and scientific feature. Our prices are no higher than for inferior makes
Butler & Johnson 229-231 E. Genesee

the highest commendation. He tells a good story in a convincing manner and, without doubt, Butler & Johnson were pleased to record many sales, which resulted from the insertion of this advertisement in a recent issue of *The Herald*, Syracuse, N. Y. It occupied five inches of space, double column width.

* * *

The Union Roofing Co., of Altoona, Pa., recently inserted a very good advertisement in the *Altoona* (Pa.) *Mirror*, which is here illustrated. Their ad

Why get a roof that needs crutches of paint to hobble down the Highway of Time, and at that, drops by the wayside after a 10 year lap?
10 years in the life of a building is no more than a week in the life of a shoe.
Genuine Bangor Slate Roofs
outlive the building without paint or repairs.
Can you ask more of a roof?
Our free roof book gives all the facts about all the roofs, mostly in the makers' own words. Before you pay for a roof, it will pay you to get it.
Union Roofing Co..
J. C. McKerihan, Prop.,
1805 Ninth Ave., Altoona, Pa.
We sell all kinds of roofings

writer has used a rather unique metaphor in the first paragraph, and it is not so far fetched as to call for adverse criticism. The second paragraph is a good one, and in its entirety the advertisement shows originality and good common sense. The Union Roofing Co. should feel very well pleased with this advertisement. It occupied four inches of space, double column width, in the paper above mentioned.

* * *

A fairly good advertisement of its kind is that of Wm. P. Gamber, of Lebanon, Pa., which occupied four inches of space of single column width, in a

Good Service Guaranteed
—OF—
Lebanon Stoves And Ranges
They are the best because THEY SURPASS THE OTHERS. THEY cost no more, take LESS FUEL and give MORE HEAT. See the economy?
HOUSEFURNISHING GOODS.
Low prices. Come to our store and be convinced.
Wm. P. Gamber,
48 NORTH NINTH STREET
LEBANON, PA.

recent issue of the *Lebanon* (Pa.) *News*. An advertisement in reference to stoves and ranges is really entitled to more space than is here allowed, for a stove advertisement should carry with it a good legible cut to attract very much attention. Wm. P. Gamber is to be commended for incorporating his street address and location in his advertisement. This is a feature that too many retail dealers neglect.

* * *

The advertisement of James D. Walsh's Sons of Albany, N. Y., is an example of the out-of-date advertisement, which retail dealers are much too prone to insert in their local papers. It can hardly be ex-

pected to produce very satisfactory results and little can be said in its favor either as to arrangement of reading matter or composition. It occupied one and one-half inches of space in the *Times-Union*, Albany, N. Y.

The man who advertises under protest never makes a success of his advertising.

Heating and Ventilating

THE EFFECT OF PAINTING RADIATING SURFACES.

BY JOHN R. ALLEN.

(This paper was read at the summer meeting of the American Society of Heating and Ventilating Engineers, held at Indianapolis, Ind., on July 15 and 16, 1909.)

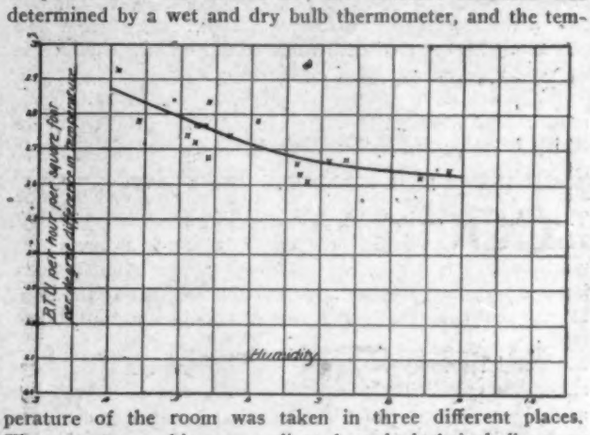
The experiments described in this paper were conducted in the Experimental Laboratory of the University of Michigan. The apparatus used for testing the radiators has been described previously in connection with the discussion of a paper presented before the society. In conducting the experiments to determine the effect of painting upon the heat transmission through radiators, two flat cast iron boxes were used in place of the radiators.

DESCRIPTION OF THE APPARATUS.

The apparatus used may be described as follows: The two cast iron boxes were placed near the inside wall of the room in the same relative position to the outside wall surface. On the floor below steam was admitted to a chamber through a reducing pressure valve. From this chamber, with nearly equal lengths of pipe, steam is conducted to the radiating surfaces. This piping is heavily covered with hair felt. Condensation from the two radiating surfaces is conducted to two chambers which are used to accumulate the condensation. These chambers are provided with gauge glasses so that the condensation in the chambers may be maintained at a uniform level. The condensation is drawn through valves from these chambers to the cooling coils on the floor below. The condensation after being cooled so as to avoid steaming, is weighed in tubs. Valves below the chambers are set so as to obtain as nearly as possible a uniform discharge of water from the chambers. The usual period of time during which tests are conducted was three hours, and before a test was accepted as correct the condensation for two successive hours was compared and a test was not considered satisfactory if the condensation for two successive hours varied more than 2 per cent.

METHOD OF MAKING THE TESTS.

The method used in determining the effect of painting the radiating surfaces was to leave one radiator unpainted and paint the other. The heat loss from both radiators was determined in each test, and the ratio of the heat loss of the painted to the unpainted radiator was termed the efficiency. During the tests, readings were taken of the temperature of the steam entering the radiator, of the temperature of the water leaving the radiator, of the steam pressure, of the temperature of the outside air; the moisture condition was determined by a wet and dry bulb thermometer, and the temperature of the room was taken in three different places. Thermometers subject to radiant heat had their bulbs protected with paper cones so as to avoid error. The actual surface of the radiators used was obtained by careful measurements.



READINGS TAKEN.

The actual surface of radiator No. 1 was 9.99 square feet; of radiator No. 2 the actual surface was 9.9 square feet. The steam pressure maintained throughout the entire test was 4¼ pounds gauge. All readings given in the following table of results are corrected readings. Corrections were made for steam gauge and thermometers both before and after the test. The following table gives the principal results obtained from these tests.

RADIATOR TESTS.

TABLE I.

1	2	3	4	5	6	7	8	9	10	11
					RADIATOR NO. 1.		RADIATOR NO. 2.			
No. of Test.	Steam Pressure.	Average room temp.	Average temp. of steam entering the radiator.	Difference in temp. between air and steam.	Condensation per hr. per sq. ft. actual surface.	B.T.U.'s rad. per hr. per sq. ft. of surface per deg. diff. of temp	Condensation per hr. per sq. ft. actual surface.	B.T.U.'s rad. per hr. per sq. ft. of surface per deg. diff. in temp.	Efficiency.	Humidity.
1	425	74.4	222	148.6	.413	2.82	.413	2.82	.997	.45
2	"	76.0	220	144.0	.418	2.94	.414	2.925	1.005	.408
3	"	63.1	224	156.3	.353	2.16	.438	2.835	.761	.542
4	"	72.3	220	148.7	.325	2.08	.432	2.78	.752	.608
5	"	74.5	220	146.5	.436	2.86	.426	2.78	1.038	.437
6	"	56.3	218	149.7	.351	2.24	.478	3.05	.735	.482
7	"	74.1	224	150.9	.421	2.67	.442	2.74	.977	.510
8	"	72.9	226	154.0	.431	2.67	.442	2.74	.977	.572
9	"	71.8	225	154.0	.318	1.97	.436	2.70	.730	.512
10	"	70.5	224	154.4	.324	2.005	.448	2.77	.724	.525
11	"	66.7	223	157.3	.442	2.68	.441	2.77	.970	.530
12	"	67.6	224	157.4	.452	2.75	.446	2.72	1.01	.520
13	"	64.2	224	160.5	.446	2.66	.448	2.67	.997	.708
14	"	64.0	224	161.0	.429	2.545	.447	2.67	.956	.735
15	"	70.6	224	154.4	.423	2.62	.423	2.63	.997	.670
16	"	68.5	224	156.5	.364	2.22	.427	2.61	.850	.680
17	"	67.0	224	158.0	.347	2.02	.469	2.66	.760	.665
18	"	86.9	224	138.1	.379	2.62	.381	2.66	.987	.848
19	"	83.4	224	140.5	.389	2.65	.386	2.64	1.00	.88
20	"	86.8	224	138.0	.374	2.59	.378	2.62	.989	.84
21	"	77.2	224	147.8	.423	2.72	.418	2.72	1.00	.60
22	"	77.7	224	146.3	.408	2.66	.422	2.77	.964	.535
23	"	76.0	224	149.0	.418	2.70	.413	2.68	1.01	.540

REMARKS.

Radiator No. 2 Plain in all tests.

1	Rad. No. 1 Plain as received from factory	
2	" " " " " " " "	
3	Painted with Copper Bronze	These paints of two coats each were painted over one another in the order given.
4	" " " " "	
5	" " " " Terra Cotta Enamel	
6	" " " " Copper Bronze	
7	" " " " Light Brown Varnish	
8	" " " " Oak Brown Varnish	
9	" " " " Aluminum Bronze	
10	" " " " "	
11	" " " " Silver Gray Enamel	This Series follows one another.
12	" " " " Snow-White Enamel	
13	" " " " Bronze Green Enamel	
14	" " " " No Lustre Green Enamel	
15	" " " " Maroon Gloss Japan	
16	" " " " Shellac and Copper Bronze Powder.	
17	" " " " Copper Bronze Powder and Linseed Oil.	
18	" " " " White Paint	Painted over one another.
19	" " " " Terra Cotta Paint	
20	" " " " Light Green Paint	
21	" " " " " " Zinc	
22	" " " " Terra Cotta Paint Zinc	
23	" " " " White Paint Zinc	

Column 10 of the table headed "Efficiency" gives the heat transmission of radiator No. 2 as compared with radiator No. 1, which has been assumed as a standard and was left unpainted during the test. In comparing the effect of the various coats, the efficiency, as given in column 10, has been taken as a basis of comparison. Tests 1 and 2 were made with both radiators unpainted and an average of the results gives a difference in the heat transmission in the two radiators of .1 of 1 per cent, so that they are assumed as having practically the same heat transmission value. Lines Nos. 3 and 4 show the effect of painting radiators with two coats of copper bronze for each test. The results of the test show a reduction in the heat transmitted by the radiator of 24 per cent. On top of these four coats of copper bronze two coats of terra cotta

enamel were applied. The result of the additional two coats was an increase of 3.8 per cent above the transmission effect of the bare radiator or 28.6 per cent above the transmission effect of the radiator with a copper bronze finish. On top of these coats of terra cotta enamel were applied two coats of copper bronze, the same as was applied previously, and the loss in the conducting capacity was shown to be about 26.5 per cent. This is about the same results as was obtained in the first experiments with copper bronze.

In order to determine whether this loss in heat transmission was produced by the pigment of the paint or by the vehicle carrying this pigment, test No. 7 was made using only the vehicle which was a light brown varnish. This test shows a loss of 2.8 per cent as compared with the unpainted radiator. The same was true when a light oak brown varnish was used. This varnish was applied on top of the coats as previously mentioned. The varnish was followed by two coats of aluminum bronze, and the heat transmission was nearly the same as that shown by the copper bronze, namely a loss of 27 per cent.

The interesting fact is that the transmission of heat was almost the same with 14 coats of paint applied to the radiator as with two coats, and that the effect apparently depended upon the last coat applied and the intermediate coats through which this heat was transmitted had very little effect upon the heat transmission. That is, the heating effect of the radiator was more affected by the condition of the surface than by the material through which the heat was conducted.

Tests 10, 11, 12, 13, 14 and 15 were started with two coats of aluminum bronze. The heat transmission was practically the same as for the aluminum bronze in Test No. 9 in which twelve coats of other paints had been applied, showing, as previously stated, that the various coats underneath the last coat made very little difference in the heat transmission. These coats of aluminum bronze were followed by a series of enamels of different colors as stated in table. You will note, as shown in test No. 12, that the snow-white enamel gave the best results. The lowest result was given by "no lustre" green. The extreme difference due to color was about 5.4 per cent.

Tests 16 and 17 were made using a different vehicle for carrying the pigment. You will notice in these tests that copper bronze and shellac seem to give better results than copper bronze and linseed oil, so that the vehicle may have some effect in the value of the heat transmission of paints. Tests 18, 19 and 20, made with white lead paints show that the transmission effect with white lead and oil is practically the same as for unpainted radiators. These white lead paints were followed by coats of zinc paint, as shown in tests 21, 22 and 23. For the light green and white the transmission effect was practically the same as for unpainted radiators. For terra cotta there was a slight reduction in heat transmission.

These tests covered a period of about three months. They seem to show that the poorest coverings are the copper and aluminum bronzes; the best materials tried were the enamels, while white lead paints and zinc paint are only slightly less in transmission effect than a coat of enamel.

EFFECT OF HUMIDITY.

From columns 9 and 11 the curve shown in the first figure has been plotted. This shows, as has been pointed out before in a previous paper, that the rate of transmission of heat varies with the humidity: that the higher the humidity, the lower the rate of transmission, the probable variation through ranges of humidity being about 10 per cent in the coefficient of radiation.

"ONE HUNDRED HEALTHFULLY HEATED HOMES."

As an agency for the promotion of high-grade furnace heating and ventilating, "One Hundred Healthfully Heated Homes"—a 108-page booklet issued by the Abram Cox Stove Company, American and Dauphin Streets, Philadelphia, Pa., may justly be said to be a factor of no mean consequence in achieving the purpose for which it has been issued. The mission of the little book is, of course, to extol the merits of the "Novelty" System of heating and ventilating for residences and other buildings. "Pure Air, The World's Best Medicine"—is the very appropriate aphorism appearing on the title page of the booklet. From the introduction, we reprint the following sentences which are apropos of the subject of warm-air furnace heating:

"There is nothing else in the physical environment of the human race so potent for promoting, preserving and restoring health as pure air. There exists no malady in which the intelligent medical practitioner does not to-day insist that the patient must be furnished with pure air. There are diseases for which the sole treatment applied, in many cases, under modern practice, is simply the continuous breathing of and living in pure, fresh air.

"It is not difficult to secure an adequate supply of pure air in a house in summer, but during the winter months few houses are properly ventilated. A house may be heated in such a manner as absolutely to prevent the possibility of having pure air in its various rooms in sufficient volume to maintain a healthful condition, and millions of houses are so heated, among these being all houses heated partly or wholly by 'direct' radiators located in the rooms or apartments."

The homes which are beautifully and artistically illustrated in the booklet, as a few examples, among many, of houses wherein the "Novelty" System of heating and ventilating has been installed, are declared to be all healthfully heated and ventilated, though it is stated that not all of them are equipped with the formal scheme of ventilation, which is a part of the complete "Novelty" System, this system being fully explained in the first few pages of the booklet. The cottages and dwellings pictured are located in all parts of the United States and below each picture is given the name, number, etc., of the furnace installed, and by whom installed, together with interesting information regarding the house, such as the number of cubic feet of the building, the exposed glass surface in square feet, the exposed wall surface—net—in square feet, and the equivalent cubic feet (measure of heating requirements), etc. The Abram Cox Stove Company are to be complimented upon the production of "One Hundred Healthfully Heated Homes," for it cannot be gainsaid that the little work will prove of much service in championing the cause of the warm-air furnace as a healthful system of heating.

NEW CATALOGUE OF "MARVEL" FURNACES.

The Interstate Mfg. Co., Oskaloosa, Iowa, have now ready for distribution, fresh from the press, a catalogue of their well-known "Marvel" Furnaces. It shows a number of new features that have just been added to the company's line. All of their various styles for various purposes and all climates are shown in the catalogue. The trade is requested to write for it. When doing so, kindly mention THE AMERICAN ARTISAN.

Maximilian Mulhall, manager of the Thatcher Furnace Company, New York, died recently of appendicitis. He was born in England in 1874.

Tinshop

A SHORT METHOD PATTERN FOR A SMOKE STACK BASE.

BY LOUIS OEHRING.

The following is a demonstration of a pattern of a chimney top base or square to a round in two pieces, to be gotten out by spacing on the bench and without trams. It should be borne in mind, though, that this method is only an approximate method and is intended where accuracy is of little consequence, but may answer in many places where it is not convenient to use the accurate method.

In Fig. 1 is shown a perspective drawing of the base. In Fig. 2, *A B C D* represents the sheet of iron from which the pattern is to be cut. On this sheet draw the line *E F* parallel with the bottom edge. At a distance from *E F* equal to the width of the flange that turns down on the brick, draw the line *I J*, and make it equal to the width of one side of the base, usually the long side. Divide *I J* into two equal parts and mark *G*. From *G* draw line *G H* square to line *I J* and of indefinite length. On line *G H* mark the distance *G M* equal to the slant height of the base on the side that the width *I J* is taken. This height is often governed by the width of the material from which the base is made. From *M* draw the line *M N* square to *M G*. Now take a pair of dividers and set

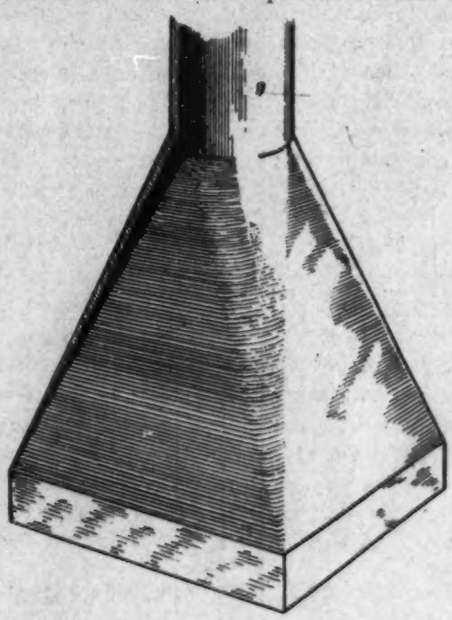


FIG. 1 - PERSPECTIVE OF A SMOKE-STACK BASE

them equal to one-eighth of the circumference of the top of the base. From *M* strike the arc at *1* crossing line *M N* with *1* as center, strike arc at *2*.

This same process can now be repeated on the other side of the pattern from *M* to *P*. Set the dividers equal to half the width of the side adjacent to the side from which the measure *I J* is taken. With *I* and *J* as centers, strike arcs *L* and *K*. Now draw line *R O*, touching the arcs *2* and *L*; this line should be extended until it crosses line *G H* at *H*. Now draw line *P Q* in the same manner. Now lay one edge of the square along line *O R* with the heel at *L*, moving the square up or down until the edge of the tongue touches point *J*, and draw line *J L*. In the same manner draw line *K I*. From *Q* and *R* draw lines parallel to lines *K I* and *J L* at a distance from them equal to the width of the flange. At *I* and *J* mark out the notches and leave laps for riveting as shown.

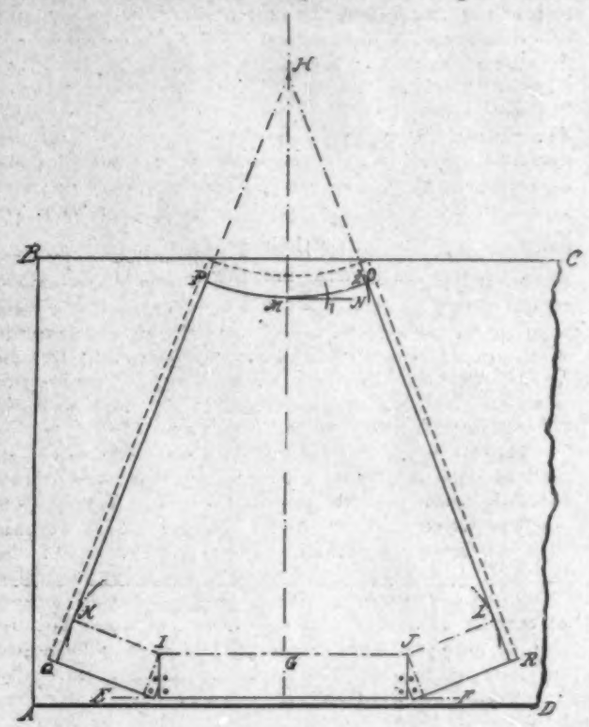


FIG. 2 - SHORT-METHOD PATTERN FOR A SMOKE-STACK BASE.

With *H* as center and radius equal to *H M*, draw arc *O P*. This completes pattern. To this add the necessary material for seaming and laps as shown by dotted lines.

There are several other short methods, but the writer believes this the most convenient.

ELBOWS FROM SQUARE TO DIFFERENT ANGLES.

To THE AMERICAN ARTISAN:

We would like to have some member of the craft demonstrate in your worthy journal the laying out of elbows from square to different angles. There are several ways of doing this but we are anxious to learn what is the most practical way.

GAG & RANWEILER.

New Ulm, Minn., Aug. 10, 1909.

BERGER STEEL OFFICE FURNITURE.

The Berger Mfg. Company, Canton, Ohio, are distributing a very handsome 72-page catalogue, describing Berger Steel Filing Devices and Office Equipment, vertical units, steel-sects (horizontal sections), cabinets, vault omnibuses, transfer boxes, waste paper baskets, tables, etc. The catalogue is profusely and handsomely illustrated and the detail work is shown up to excellent advantage. In presenting the cata-

logue, The Berger Mfg. Company invite particular attention to the large variety of stock styles of steel equipment that they are offering. New and important units have been added and their line of stock equipment, they state, continues unequaled in completeness and in adaptability to a wide range of varying requirements.

In strength and substantial construction Berger Steel Filing Equipment is said to be superior to all other, distinctively embodying the rigidity so essential to long life and serviceability. The various parts of the devices are hand fitted and work smoothly and easily at all times, while in neatness of design and character of finish there is said to be nothing left to be desired. The company state that the unique position they occupy as the largest sheet metal workers in the world, controlling their product in the various stages of manufacture "from the ore to the store," peculiarly fits them for the effective and economical production of both stock and special equipment, and enables them at all times to maintain the high excellence of their product and at the same time to effect important economies in the cost of manufacture.

The inherent advantages of steel over wood for filing equipment are widely recognized. Steel filing devices are safer, stronger and more durable, and their non-combustible and fire-resisting properties are in line with modern advanced practice, which tends to the elimination of inflammable materials from building construction and equipment. Steel filing equipment not only furnishes no food for flames but becomes actually a fire-retardent and a protection to its contents. When writing The Berger Mfg. Company, ask for catalogue 6137, and kindly mention THE AMERICAN ARTISAN.

METAL CEILINGS OF WM. FOSTER & SONS CO

The catalogue of Wm. Foster & Sons Co., 1000 E. Carpenter St., Springfield, Ill., shows a number of new and special designs of metal ceilings and side

One of Wm. Foster & Sons Co.'s Recent Ceiling Designs.

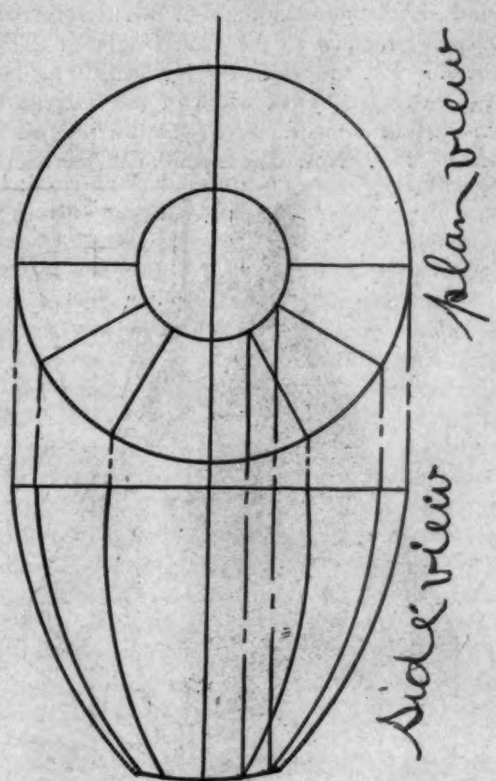
walls which the company has brought out. One of these is shown in the accompanying illustration. The company state that their modern and up-to-date plant operated under an aggressive policy of advance is surrounded by exceptional facilities for shipping. These advantages, they state, together with their own modern ideas—the outcome of years of practical experience in the sheet metal business—place them in the front rank of manufacturers and shippers of this class of goods. They state that it is their purpose zealously to guard the reputation already conceded them, namely, that of offering the best designed goods on the market. The patterns of Wm. Foster & Sons Co. are new and original, admitting of a high degree of ornamentation. When writing for catalogue, kindly mention THE AMERICAN ARTISAN.

PATTERN FOR GORE OF HEMISPHERICAL TOP.

To THE AMERICAN ARTISAN:

The gore in a hemispherical top for which a pattern was requested by "W. E. D." in the July 24 issue of THE AMERICAN ARTISAN, is a double curved surface and must be raised to obtain the required shape or form, and therefore cannot be accurately developed on a flat surface.

In the raising process, sheet metal does not work

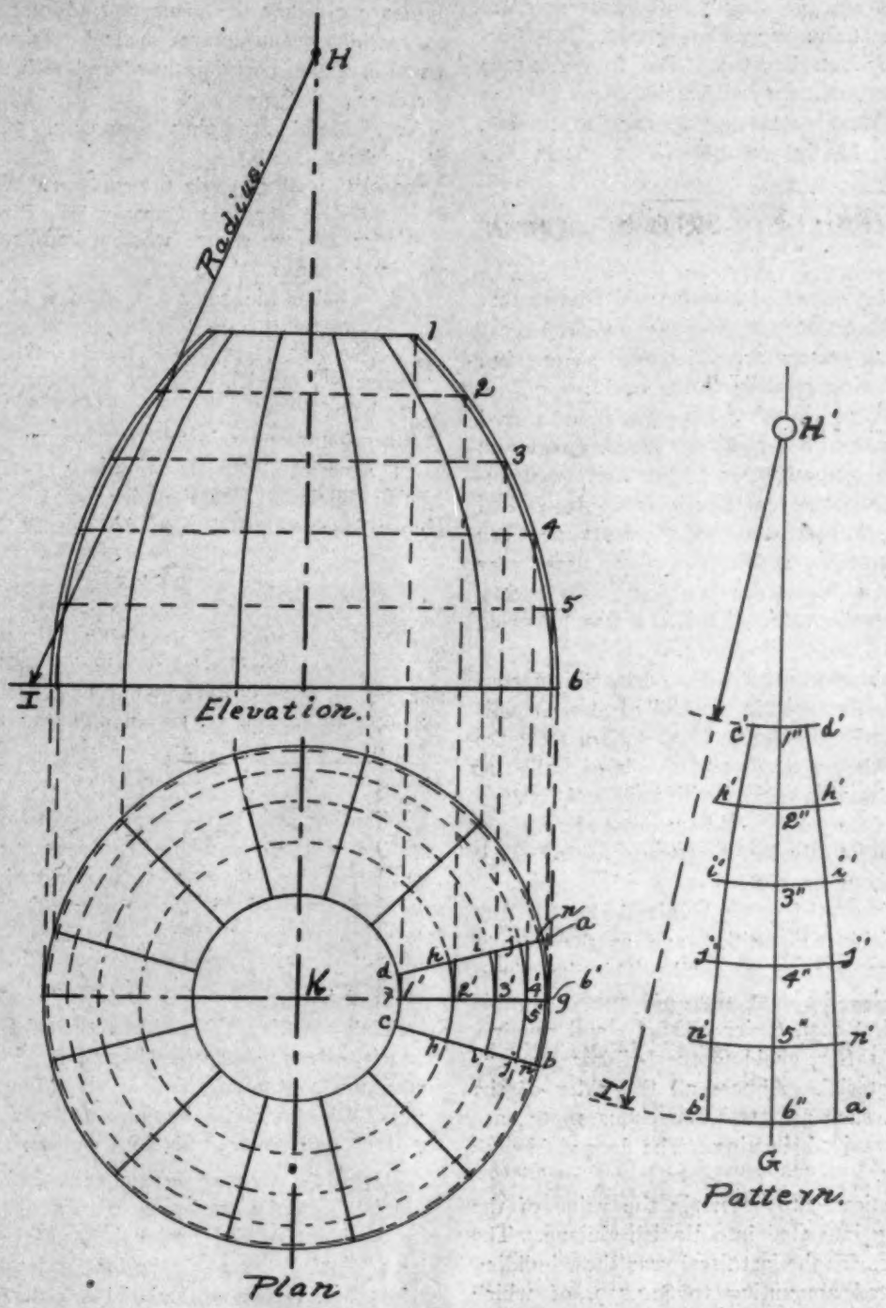


Sketch Showing What Was Asked For.

uniformly, which necessitates trimming or allowing more or less material for the seams, on individual pieces, after the pieces are hammered to shape.

A method is here presented describing this approximate pattern. Draw plan and elevation as shown (next page), having center line of one of the pieces parallel to the elevation. Space the profile of the elevation into equal spaces, as *1-2-3*, etc. From these points draw vertical lines intersecting the center line of the piece in plan at *1'-2'-3'*, etc. With *K* as center describe arcs whose radii are *K-1'*, *K-2'*, etc. In the elevation average a line through the profile as shown

by *I-H*. Upon any right line, as *H'-G*, and using *I-H* as a radius and *H'* as a center, describe the arc *b'-6"-a'*. From *6"*, lay off on the line *H'-G* the spaces taken from the profile of the elevation as *5"-4"-3"*, etc. Through these points with *H'* as a center describe arcs as shown. Upon these arcs, on each side of, and from the line *H'-G*, lay off the lengths of the arcs of like numbers and letters taken from the plan. A curved line drawn through these points will produce the approximate pattern required.



Drawing of Pattern for Gore.

SAN FRANCISCO.

San Francisco, Cal., July 29, 1909.

INTERESTING PROPOSITION OF IWAN BROS.

Iwan Brothers, South Bend, Ind., are calling the attention of the trade to the advantages of Iwan "Perfection" Wire Conductor Pipe Hangers over other methods of attaching spouting. For 20 cents, either silver or stamps, Iwan Brothers will send to the trade a box of "Perfection" hangers, either 2½-inch or 3-inch, by mail postpaid. The manufacturers state that this is considerably less than the cost to them, as the postage alone is about 15 cents. To attach pipe with these hangers the following directions are given: "Strip the hanger over the pipe, then nail one end of the hanger to the building, and pull the other end of the hanger tight and nail it also. It will hold the pipe very firmly on all sides, while a common tin strip will only hold it on the outside. The hanger also holds the pipe an inch from the building to permit painting. As Iwan "Perfection" conductor pipe hangers are made of galvanized wire they will last a long time. When writing Iwan Brothers for enough samples of these hangers for a small job of spout hanging, kindly mention THE AMERICAN ARTISAN.

THE "QUICK MEAL" SOLDERING FURNACE.

The Ringen Stove Company, St. Louis, Mo., Division of the American Stove Company, are calling the attention of the trade to the "Quick Meal" Soldering Furnace, which they state is the "tinner's friend." This furnace is said to be quick, powerful and durable. It has a heavy brass tank with brass pressure pump, and will heat any size soldering iron. It is suitable for bench or outside work. The Ringen Stove Company announce that they will make a special price of the "Quick Meal" soldering furnace to tinners. When writing, kindly mention THE AMERICAN ARTISAN.

ROOFING MATERIALS IN BRITISH GUIANA.

Consul Arthur J. Clare of Georgetown advises that the largest importations of roofing materials into British Guiana at present are galvanized sheets, and submits the following relating to the trade:

"The sheets come in 28 and 30 gauge iron, and are sold at the rate of 8¼ cents for the 28-gauge and 7½ cents for the 30-gauge per square foot. Galvanized sheets are imported exclusively from the United Kingdom. The import duty is 50 cents per 112 pounds. The customs statistics for the fiscal year 1907-8 show that galvanized iron in bars, rods, sheets, or corrugated to the value of $56,415 was imported during that year.

"For roofing the next article in importance is neponset, which is manufactured in the United States. This is sold here in rolls of 250 and 500 square feet; the small rolls selling for $2.50 and the large rolls for $4.75. This material is packed with nails and washers for laying, and pays an ad valorem duty of 12½ per cent. It is used mostly for temporary roofing, as it can be laid without boards.

"Slates are imported from England, but of late years in diminishing quantities, and at the present the importations are very small. This has been brought about by the fact that galvanized iron is cheaper as to first cost, easier to apply, and requires a much lighter rafter, enabling the builders to make a saving in material. Almost all the older of the large buildings, such as stores, warehouses, etc., are roofed with galvanized sheeting. The finer residences have slate roofs.

"It is impracticable to ascertain the value of the prepared roofing imported into British Guiana. The customs statistics for the last fiscal year show building material imported amounting to $10,239, of which $5,480 came from the United States. It would be safe to assume that the greater portion of this amount represented prepared roofing, as the other principal building materials are listed separately. 'Eternit' slates (asbestos cement), imported from England, are being advertised here by local agents, and their sale will be pushed. They have been used in part for the new bath houses at the Colonial Hospital, and the Carnegie Library is being roofed with them. Manufacturers in the United States desiring to introduce their prepared roofing here should appoint local agents, otherwise the prospects for selling their products will not be bright." [The name of an American firm of engineers at Georgetown may be obtained from the Bureau of Manufactures, Washington, D. C.]

NOTES AND QUERIES.

STEEL REFRIGERATORS.

From M. H. McDonell, Carrington, N. D.

Please give me the name and address of the company which manufactures a steel refrigerator, cylindrical in shape, porcelain lined and with the ice chamber door opening on top.

Ans.—Metal Stamping Company, 502 Mechanic St., Jackson, Mich.

WOODEN HANDLES FOR DIPPERS AND SAUCE PANS.

From Standard Aluminum Company, Two Rivers, Wis.

Where can we secure wooden handles for dippers and sauce pans?

Ans.—Baker-McMillen Co., Akron, Ohio.

CHURCH AND SCHOOL HOUSE BELLS.

From Edward C. Plank, Forest Junction, Wis.

Please tell me where I can get church and school house bells.

Ans.—Simmons Hardware Company, St. Louis, Mo.; American Bell & Foundry Co., Northville, Mich.; Cincinnati Bell Foundry Co., Cincinnati, Ohio; Henry Stuckstede Bell Foundry Co., St. Louis, Mo.

ITEMS.

The New Process Galvanizing Co., Rochester, N. Y., has been incorporated with a capital stock of $15,000, to operate galvanizing factories. The incorporators are Frank M. Harris and Murray B. Harris, Lowell, Mass., and Claire C. Bateman, Scottsburg, N. Y.

Follansbee Brothers Company, Pittsburgh, Pa., are entering a large number of orders for "Keystone" Ventilators for public and manufacturing buildings, among these received being one for six 36-inch ventilators for use on buildings of the New York Soldiers' and Sailors' Home, Bath, N. Y.

J. R. King, owner of the King Sheet Metal Works of Oklahoma City, Okla., has returned to his home in that city, having been in Chicago looking after some important contracts which he is filling. Mr. King made THE AMERICAN ARTISAN a pleasant call during the week and renewed his subscription.

Charles A. Gauss, Indianapolis, Ind., Democratic candidate for the mayoralty of that city, was third vice-president of the National Association of Master Sheet Metal Workers during the past year. On August 3 Mr. Gauss celebrated his 35th anniversary in the tin business in Indianapolis. He began business in 1874, and is said to be the only man of twelve engaged in the business at that time, who still continues.

PRAISES THE AMERICAN ARTISAN

To THE AMERICAN ARTISAN:

I have found a good job at Clinton, Wis., by advertising in your paper. There was no end to the answers that I received to my advertisement.

G. E. ROBERTS.

Clinton, Wis., August 5, 1909.

Master Sheet Metal Workers in Annual Convention.

The Fifth Annual Convention of the National Association of Master Sheet Metal Workers was held at Louisville, Kentucky, on Wednesday, Thursday and Friday, August 11, 12 and 13, and was a very successful meeting from every point of view. There was a large attendance of members, the various local associations throughout the country being well represented. The papers read and addresses delivered were exceptionally didactical in character and furnished much food for thought and study on the part of the members. At every session a spirit of good-fellowship prevailed, the members uniting with each other in advancing the interests and promoting the common good of the association.

As a result of the efforts of the Louisville Entertainment Committee the visiting delegates and their friends were accorded such hospitality as brought

Chairmen of the Louisville Entertainment Committee.
(Top Row, From Left to Right—G. L. Smith, Finance; J. C. Kirchdorfer, Program; E. G. Heartick, Executive; Gus Krauth, Transportation; Wm. V. Richter, Hotel. Bottom Row, From Left to Right—Al. Bourlier, Entertainment; E. H. Wagner, Exhibits; J. M. Holstner, Decoration; L. H. Harpring, Secretary; W. C. Wulff, Advertising.)

forth from all commendation of the most pronounced character and words of unstinted praise for each individual member of the committee, which was composed of G. L. Smith, J. C. Kirchdorfer, E. G. Heartick, Gus Krauth, Wm. V. Richter, Al. Bourlier, E. H. Wagner, J. M. Holstner, L. H. Harpring and W. C. Wulff.

WEDNESDAY MORNING, AUGUST 11.

The convention was called to order by President Edwin L. Seabrook at 10:30 o'clock, in the Exposition Hall of the Galt House. At his request the delegates arose and sang "America," and then repeated the Lord's Prayer.

President J. M. Holstner of the Louisville Association, then spoke of the pleasure his city had in entertaining such an important trade gathering and said the official welcome to the city would be extended by Mayor James F. Grinstead, who arose and was introduced to the delegates. Mayor Grinstead in the course of his remarks said, "You have done Louisville an honor in coming here for your convention and yet it is such a delightful place that we are so well satisfied we do not even complain of hot weather, and I feel sure that you will enjoy the same satisfaction in being here. Once when traveling on a hot day in Kentucky on stopping at a house the host ordered a bucket of water drawn and offered me a drink and then asked me if I would like a little apple brandy with some ice. I said that I felt I needed it about then and he said he wished to heaven that he had it to give me. (Laughter.) I assure you that you will meet no such disappointment here. I know our Committee has provided for your every comfort. I hope your deliberations will be profitable. I won't detain you for I know you want to get down to business; that you are here to better your own condition and that of the whole country. That's what all Americans stand for. I hope you will stay as long as you will. I hope you will come again and when you start home I wish you God Speed."

President Seabrook thanked Mayor Grinstead for his kind welcome.

Captain B. B. Davis, of the Louisville Commercial Club, was then introduced, and said: "When you come from all sections of the United States, Louisville appreciates the honor as well as the responsibility to make your stay a pleasant one, and I am confident that even the men in such an important industry as yours will be benefited by a stay with us enjoying our hospitality.

"E. G. Heartick: I hope you will help us carry out our program. You will be interested in the fact that the entertainment you will enjoy here is paid for by the wholesale trade who have rented exhibition spaces here and they are entitled to your loyal support. It will be easy for other cities in the future to get a larger number and they can afford to make a lower rate to our friends than we were able to do. We shall spare no effort to show you a good time and to show you Louisville to the best advantage."

The President then appointed the following Auditing Committee: Jesse V. Dailey, Cleveland; J. Dougherty, Arthur E. Lamneck, Columbus; J. P. Williams, Omaha; George W. C. Wiegel, Baltimore.

WEDNESDAY AFTERNOON, AUG. 11.

The session of Wednesday afternoon was opened at 2 o'clock with the singing of "My Old Kentucky Home." The president then appointed F. F. Verges of Cincinnati, O., Sergeant-at-Arms. Then followed

the reading of the president's report, which was as follows:

PRESIDENT SEABROOK'S REPORT.

As we come together for our fifth annual convention, it is very gratifying to your officers to be able to report that the year just closed has been the very best in the history of our association. I feel that we can congratulate ourselves upon the splendid showing during the past year and the work that we have accomplished in every line of our association efforts.

During the past two years all lines of business have experienced the depression that spread over the country in October, 1907. The building industry has possibly suffered more than many other lines of trade, and with it, naturally, the sheet metal business.

It hardly need be stated that business depression affects the prosperity and growth of trade organizations as well as business in general. It could hardly be expected that trade associations would make the same growth during business depression as in the years of prosperity.

GROWTH OF THE ASSOCIATION.

When the business condition in our country for the past two years—and especially the past year—is considerd, I think that our growth in association work during the past year, and the things that we have accomplished, may be considered almost remarkable in our history.

As to increase of membership: We have just closed the most successful association year, with the exception of the time between the Indianapolis and Cleveland conventions. The year 1906-07 was a most prosperous one in business, and our association had just begun to make its work effective during that year, consequently we admitted twenty-three local associations and doubled our membership. We had not then reached the time when membership began to lapse and local associations became dormant or disbanded altogether. At that time we were too young for any reaction, which is always bound to follow in any line of effort or work.

LOCALS SHOW GOOD WORK.

During the year hardly a single local association that paid its per capita tax for 1908 has failed to make the payment this year. In addition to this several of the locals that did not pay last year have been revived and renewed their membership in the national organization.

Very few of the locals show any decrease in their membership; most of them have held their own, or have increased their membership over that of last year.

Some two or three larger associations report a smaller membership than last year. This is due to the fact that such associations would not pay the per capita tax for members who were delinquent in their dues to the local organization.

Two or three of the larger locals had a remarkable growth at the beginning of their work. This growth was due to the labor troubles or some other local influence which brought many members of the trade into the organization. It is not surprising that some of these should become indifferent and luke-warm and lapse their membership in their local organization. These locals did not have other material to draw upon for increasing their members when this class dropped out, so they were compelled by the very nature of things to report a smaller membership this year than last. It is very gratifying, however, to note that the number so reporting is very small.

PHILADELPHIA, LARGEST LOCAL.

The largest local is Philadelphia, having at the present time a membership of 107. This local has had a steady growth all during the year. Ohio, of the States, has the largest membership and the largest number of locals.

When we look over the condition of the sheet metal trade as it was before our national organization came into existence, and compare it with the conditions that exist where the trade is organized locally, we can see the great value of business trade organizations and the work that our national organization has done through its locals.

SUCCESS DEPENDS ON EFFORT.

There may be one feature in passing that is worthy of note: Too many men expect entirely too much for what they give to their local trade organization. The opinion is entirely too common that the mere organizing, or of men coming together and devoting a little time each month to some routine matters, is going to cure, somehow or 'other, the ills afflicting the business locally and in general. They seem to lose sight of the fact that the association benefit is determined largely by the attitude of the member to the association. No man would expect to put a little into his business and even neglect to give a little attention to the little effort that he did put forth, and expect to reap very much benefit from his business. He looks at the trade association, however, with a different set of magnifying glasses; he loses sight of the fact that the trade association is a business asset of little or great value, just in proportion as he uses the association for the advancement of his own business in conjunction with that of his fellow members.

WHAT ONE LOCAL HAS ACCOMPLISHED.

There is one local that has raised for its own use nearly $1,000 during this association year. This money has been wisely expended for association work within its own bounds. Did it pay? This local has brought trade protection to a very high standard; very little sheet metal supplies reach the consumer in that city except it goes through the sheet metal contractor, and even that little is being adjusted so that it will reach the consumer through the proper channel.

Good prices are maintained by the trade in general. Meetings for the purpose of interesting the trade were held in different sections of the city. Scarcely a regular meeting is held but that from three to five new members are received. Sheet metal trade conditions in that city are satisfactory, considering the general depression.

DETRIMENTAL RESULTS OF HALF-HEARTEDNESS.

There is another local where the local secretary has the hardest kind of work to get one-half the members to give $2 per capita tax to the national organization. The mechanics these men employ contribute five times this amount to support their labor organization. In a contest the mechanics will reign, the employer lose—and he ought to lose if he is too short-sighted to support his own national trade organization.

Unfortunately there are always some individuals who are willing for the other fellow to do the fighting and the spending, while they reap the benefits without raising a finger to help along.

No associated effort will be a success unless it is made a part of the business with which it is connected. It is impossible to get out of a thing more than you put into it. No man puts a little attention into his business and gets big returns. No set of tradesmen can devote just a little time to their trade association and expect great results; the benefits derived will be just in proportion to the energy, time and business attention devoted to the trade organization. If the business organization is to be a success it must be carried into business life three hundred business days in the year; anything less than this lessens the value and the influence of the local organization.

CONFIDENCE, FOUNDATION OF SUCCESS.

The foundation-stone for success in organized effort is confidence in each other. It is useless for men to come together and agree to certain propositions and go out the next morning and deliberately and persistently violate their sacred word of honor. Confidence between man and man is established by each doing the thing mutually agreed upon. If each does not carry out the policies and principles of the trade organization, how is confidence to be established? How can business be conducted or any organization maintained without confidence? When members of a local have confidence in each other there will be success. One of the best means to establish a lack of confidence is to distrust everybody else.

SELFISHNESS DECRIED.

One of the weaknesses of associated effort is the desire of some sharp fellow to get more benefit out of the organization than the other fellow. Organized effort is a mutual

affair and each one should share alike, in proportion to his volume of business, the benefits derived from co-operation.

It is along such lines as these that our national association has been conducting its campaign of education for nearly three years. It has thrown out broadcast to every member of our trade in this country the principles of our national organization, and the endeavor to show the benefits of co-operation by picture and word.

I cannot help but feel that the seed which has been sown has begun to bear fruit. Some of it may be very slow in sprouting; some of it has been very slow in growing; some of it has been stunted, and some of it has borne an abundant harvest; but were the work that we have done to be characterized as any of the above, it is better to have sown the seed and have some of it just started, some of it stunted, than to have sown no seed at all.

I am sure that if you will look back over the condition of your trade before you had a local organization, you will see how far we have traveled for better conditions in the last few years.

ELEVEN LOCALS ADDED LAST YEAR.

Since our last convention the work of organization has gone steadily forward. We have not accomplished all that we hoped for, nor all that we set out to do at the beginning of the year. Eleven new local associations have been organizd and affiliated with the national association during the past year. They are as follows: New Orleans, La.; Nashville, Tenn.; Youngstown, Ohio; Columbus, Ohio; Wheeling, W. Va.; Springfield, Ohio; Savannah, Ga.; Evansville, Ind.; Salt Lake City, Utah; Little Rock, Ark., and Mansfield, Ohio, with a membership of 145.

Of these I have personally visited and organized the following: Nashville, Tenn.; Wheeling, W. Va.; Youngstown, Ohio; Springfield, Ohio; Savannah, Ga., and Mansfield, Ohio. To these should be added Columbus, Ohio. I did not bring the trade together in this place, but in January I visited them and used my best endeavors to induce them to affiliate with our national organization.

MANSFIELD QUICK TO AFFILIATE.

Mansfield, Ohio, holds the record for quick action in affiliating with the National after organizing. The first meeting for this purpose was held July 21. On the 26th of the same month the members made application to unite with this body.

I have also during the year begun work in the following places: Chattanooga, Tenn.; Knoxville, Tenn.; Grand Rapids, Mich.; Kalamazoo, Mich.; New Britain, Conn.; Springfield, Mass.; Lynchburg, Va.; Staunton, Va., and Richmond, Va.

None of these have so far united with the national organization. In every case some kind of a meeting was held during my visit and an organization effected. It is to be regretted, however, that my time did not permit of a second or third visit to these places and see them properly organized.

In every instance, before the place was visited, correspondence was had with all the members of the trade in the respective localities whose names I could obtain. The first letter drew attention to our national organization and asked if they would be willing to attend a meeting of the trade for the purpose of considering the advisability of organizing a local if I would come to that place. If sufficient encouragement were given, I arranged a visit. In most cases there was a fairly good attendance at these meetings, and a president and secretary generally elected. But I have come to the conclusion that in many instances more than one visit is necessary to get the proper kind of an organization.

While the locals in these places have not made much progress, I still believe that the time and money expended in organization has not been wasted. I think that in most of these places the organizations formed will perfect themselves and affiliate with the national association.

In addition to the above places, I have visited the following associations during the year: Cumberland, Md.; Roanoke, Va.; Louisville, Ky.; Cincinnati, Ohio; Dayton, Ohio; Cleveland, Ohio; Boston, Mass.; Atlanta, Ga.; Birmingham, Ala.; St. Joseph, Mo.; Kansas City, Mo., and Memphis, Tenn.

On the trips taken for organization it was often necessary to pass through cities where there was a local organization. Advantage was taken of this opportunity to attend the meetings of the locals and thus meet the members, or ask them to hold a special meeting if my trip did not come upon their regular meeting night.

I might add that the trip to Denver, Colo., and the visit to the St. Joseph and Kansas City locals were made at no expense to this association, as I was attending another convention at Denver and passed through St. Joseph and Kansas City on my return home.

PROFITABLE RESULTS FROM VISITING LOCALS.

I feel that the visit to these locals has been an important feature in binding our association together and being able also to get an idea of the conditions surrounding the trade and difficulties confronting it in each locality. I consider it an association asset to know something about all branches of the business in Boston, Mass., Birmingham, Ala., Kansas City, Mo., and in other sections of the country, because of this knowledge we are much more able to handle the association affairs in a far more intelligent and effective manner. There is an old saying that "knowledge is power," and I am sure that it will apply to association work as well as to anything else. The more we know about the local conditions of the sheet metal business the more effective will our association work be.

EXPENSES OF PRESIDENT FOR PAST YEAR.

During the year I have visited in all thirty-six cities. I have traveled by railroad mileage 12,342 miles, and expended $446 for organization work. In all, this has consumed fifty-one actual working days, or one-sixth of the business days in the year.

The expenses of this office for the past year have been $808.77, as follows:

Traveling and organization work	$446.66
Postage, telegrams and expressage	75.05
Printing	53.25
Stenographer	233.81
Total	$808.77

This, of course, does not include the printing of by-laws, reports of the Chicago convention, and some other small items which belong to the general work of the association.

No account has been kept of the number of letters sent out from this office, but considering the fact that we have spent about $70 for postage and that nearly all our mail goes out under first-class postage, we have written about 3500 personal letters during the year. All this work has been accomplished in the most economical manner.

RAILROAD RATES.

Application was made to the proper passenger association for reduced railroad rates to this convention. We applied for rates on the certificate plan—that is, a full fare coming to Louisville and one-third the rate returning. While the application was not refused, the number of delegates required to obtain this concession, namely, 1,000, was so great that it was useless to go on with the matter. The subject, therefore, of reduced rates was dropped, because we knew it would be impossible to secure 1,000 delegates to this convention.

LABOR TROUBLES.

Our trade has been remarkably free during the past year from labor troubles. Memphis, Tenn., and Rochester, N. Y., had strikes at the beginning of the year for the open shop. In both of these places the struggle was short and somewhat sharp but in both instances the open shop prevailed.

The trade was brought together in Little Rock, Ark., because of a strike; also for the open shop. This has been settled on that principle.

It is worthy of note that no local in our national organization, contending for the open shop, has lost a fight for that principle.

During the month of May, labor troubles broke out in Denver, Colo. I attended two meetings of the trade in May while in that city. The sheet metal contractors were drawn into a fight which was not of their own making. One union of carpenters, affiliated with the Building Trades Council in

Denver, broke away from that organization. This left a very few union carpenters in that city. The other trades refused to work with non-union carpenters, yet the unions could not supply 10 per cent of the carpenters demanded by the contractors. This brought the sympathetic strike to the front. Conditions in Denver became such that there was nothing for the contractors and sub-contractors to do but to throw off the yoke of unionism. Help of all kinds was secured from other cities, and the situation in Denver at the present time is largly the open shop. When this fight was forced upon the sheet metal contractors they took up the question, reorganized their dormant local association and have since been making good progress toward perfecting a strong local association. There is every reason to believe that they will again become part of our national association in the very near future.

Our principles as rgards the labor situation are so clear and we believe so fair that we need not make any further comment upon them.

APPRENTICESHIPS.

The apprenticeship question has received considerable attention from our members during the past year. Everywhere the complaint comes of inefficient mechanics, made so by a lack of proper training.

Last year Philadelphia had quite a large class of boys in the Y. M. C. A., under a special instructor in sheet metal pattern cutting and drafting. This year the class was increased in numbers and more advanced instruction taken up. Cincinnati also has tried the Y. M. C. A. plan this year and with considerable success. There was some doubt in the minds of the Cincinnati local members whether a sufficient number of boys could be induced to attend the class to make it successful. The most pleasant surprise in this matter was that the applications for this instruction outnumbered the class capacity.

From information received, the subject of apprentices and the method of training them are receiving increased attention everywhere. Our trade is beginning to see the necessity of compelling the boy to remain with his employer a stated term of years. No systematic training can be given any boy who drifts from shop to shop. This is one of the most important features of our work. If we do not train the boy today, there will be no mechanics in the future.

TRADE PROTECTION.

You will all probably agree that trade protection is the important feature of our work. You will all agree that the proper method of distribution of supplies is from the manufacturer to the wholesaler or jobber and from the jobber to the retailer; or, in our trade, to sheet metal contractors. When we deviate from this method we undoubtedly infringe upon some rights of others that, in a business way, we are bound to respect.

Surveying the entire situation of our trade in these respects, we can undoubtedly report that a great advancement has been made in trade protection. The jobber is beginning to respect the trade rights of the individual through whom his products reach the public.

Unquestionably there is a decreasing amount of sales made direct to the owner, builder and contractor. Most of our local associations have taken up this question with their jobbing houses and so presented the matter of their own rights to them that many of the jobbing houses have withdrawn entirely from selling direct.

There are several lines of sheet metal supplies, however, of which we have as yet made no effort to control. It is better to take up one thing at a time and perfect that rather than to waste our strength and energy in taking up a number of these things and accomplishing very little in any of them.

The committee on trade relations and policy will present a detailed report regarding trade protection as it is today throughout our association. For this reason it is not necessary for me to enter into any general report upon this matter. Two points, however, are worthy of consideration:

The first is, that if every member of our association would be true to our principles, trade protection in every local association would be a reality in six months. It is to be much regretted, however, that some do not yet place principle above the dollar. Some will cry aloud for trade protection, but do the very thing that will prevent its attainment. It is useless for any sheet metal contractor to demand that he be protected and buy from the firm that does not protect, because it offers a slightly lower price. This action on the part of some sheet metal contractors only throws oil on a burning fire that is eating its way into the business.

Our trade protection policy will never become effective until the sheet metal contractor confines his purchases to the firms that are living up, to the very best of their ability, to the trade protection principles.

The second point is, that some jobbing houses, in order to stand in with the trade, have signified their intention, by letter, to confine their sales to the sheet metal contractors. They did not and never intended to do any such thing when they wrote the letter.

In my organization work I have been careful to inquire, in the different places visited, from the sheet metal contractors, how their jobbing firms were treating them. In several instances I have been amazed to find the treatment accorded the trade was absolutely opposite to that expressed in the letter from the jobber of that city. The truth was that he would say certain things while he continually did the opposite. I am very glad to say that these instances, as noted, are very few; but they have been sufficient to put us on our guard as to finely written letters regarding the attitude of certain firms on the matter of trade protection.

Quite a number of complaints have come in from different parts of the country during the past year. Every one of these complaints have been taken up and carefully sifted out. Some complaints have been very specific as to the firm that made the sale, the kinds of goods sold and to whom they were sold, while others have simply complained in a general way.

It is almost impossible to investigate a complaint unless it is specific as to the party making the sale, etc.

Your committee on trade relations and policy has held three meetings during the year and will make a detailed report to you at one of the sessions.

We can truthfully report that trade protection has made steady, substantial progress during the year; but it rests largely with the local associations as to the effectiveness of this principle. Like everything else, it must be diligently worked at if it is to be successful. Every member of our association should be urged to confine his purchase to the firm that will protect him and our association members everywhere.

INDIVIDUAL MEMBERS.

While our association has had a steady growth in the number of locals organized and affiliating with it, there is another class of membership which has been almost entirely neglected; that is, the individual members. Of this class we have but very few. I believe the time has now come when we should make a most persistent effort to increase the individual members of our association. In many places there are from two to five sheet metal contractors engaged in the business; this number is too small to form an effective local organization. To affiliate with some distant local seems hardly to answer the purpose of these smaller localities. Many of the trade in these places would like in some way to secure the benefits of our national association and in some way become affiliated with us.

Our present admission fee for individual members is $5. While to many of us this may seem very small, I am quite sure that it has been a stumbling-block toward increasing our individual membership. During the year this office has had considerable correspondence with this class of the trade throughout the country. By personal solicitation and correspondence, we have presented this matter to many of the trade, but have not received a single application.

When we consider that several of our own locals had their foundation laid by some sheet metal contractor becoming an individual member, we can see to what such membership may lead.

Again, where there are but two or three engaged in business in a place, they are at the present time generally fighting each other. If we could get these two or three

individuals, one at a time, from each locality, into our national organization, there would at least be a bond of sympathy between them from common membership in an association. Take two firms in a small place that are fighting each other; if both of these could be induced to unite with our national association, irrespective of the other, I believe that it would take off the keen edges of competition. In addition to this we should be able to make our trade protection policy far more effective.

RECOMMENDS REDUCTION IN INDIVIDUAL MEMBERSHIP FEE.

Referring again to the admission fees for individual members: I believe that it is too high. I submitted to the secretary an amendment to our by-laws on this particular point, changing the admission fee of individual members from $5 to $2. In further considering the subject, I believe it would be wise to make this admission fee $2 for at least the coming year. I believe that by a proper systematic effort we can largely increase our individual membership during the coming year with the admission fee placed at $2. The mere making of this admission fee $2 will not bring the members in; they must be sought after as persistently and with as much business ability as you give to your own business. The mere statement that the admission is reduced to $2 will have but very little effect unless it is followed up with persistent solicitation for their membership.

Most of our locals have been organized by some one going out and doing the work. I do not mean that I think it necessary to use such personal solicitation in this class of work, but I do feel that a systematic correspondence will be necessary to produce the results.

I therefore recommend that this convention reduce the amount of admission fee for individual membership from $5 to $2.

ASSOCIATION EXTENSION.

If I could strike a keynote for this convention, it would be association extension. I wish we could ring this out as a clarion-call to every honorable sheet metal contractor. I would that we could sound it through the Valley of the Father of Waters, over the Alleghenys and the Rockies, through every town, hamlet, village and city from the Atlantic to the Pacific, and from the Lakes to the Gulf. Association extension! I wish we could sound it so far and so wide that it would catch the ear of every master sheet metal worker, every sheet metal jobber and manufacturer of sheet metals in this country. I wish we could not only catch the ear of these, but could get them into action for the principles and policies of our association—association extension, open shop, unrestricted apprenticeship, better material, better prices, trade protection, undue competition eliminated—and everything else it implies carried into every nook and corner of this great American commonwealth. Association extension, not only in numbers, but in power to eliminate the undesirable and substitute the profitable. Association extension not only in territory covered, but in the influence for the upbuilding of a good and growing industry.

As a convention you have before you a great opportunity, greater than any in this trade that has preceded you—probably greater than any that may succeed you for some time to come. Will you take hold of the opportunity and deliberately and wisely plan to carry our association into every part of this great country and to every master sheet metal contractor in it? Will you make this the object of all your deliberations? Will you set this as the ideal to be attained? Association extension! Will you make it possible—nay, a reality, by what you do today, tomorrow and Friday?

WORK OF THE CONVENTION.

And now as we begin the actual work of this convention let it be impressed on each of us the personal responsibility that we each assume as representatives of our respective local business interests. Do you realize that what we shall do here in the next three days will in some way affect the business relations of something like fifteen thousand firms belonging to our trade, to say nothing of the great number of manufacturers, foundries and jobbing houses that supply these thousands of firms? When all these are considered, how great is the responsibility of this gathering! How insignificant is personal ambition or selfish motive of the individual when weighed in the balance for the common good of this great industry! How broad-minded, then, should we all be! How willing we should be to get at the truth of matters and do justice to all connected with our trade, to do that which will be of the greatest benefit to all!

Do you realize that this convention will be just what we make it? It will do just what we think it ought to do, and no more. It will do no more, accomplish no more than our conception of the things it ought to do and accomplish. What is your individual conception of the things this convention ought to do and accomplish? The eyes of the sheet metal industry are turned toward us; it will look for something positive, definite—results that are practical.

Secretary Goebel reported for the Board of Directors that they had held a session at the Galt House on Tuesday, there having been present E. L. Seabrook, Otto Goebel, Al. Bourlier, T. P. Walsh, Robert Kain, W. A. Fingles, Thomas Lee, Thomas F. Black and William A. Gallaher. The recommendation of the president to reduce the admission fee of individual members to $2, was approved.

The reports of the president, secretary and treasurer were approved. The receipts of the organization during the past year amounted to $2,888.26, and the expenditures totaled $1,484.16, leaving $1,404.10 in the treasury. Secretary Goebel's report follows:

REPORT OF THE SECRETARY.

At the close of the Chicago convention, President Seabrook came to me and said: "Mr. Goebel, the executive success of the National Association depends on your office and mine." I agreed with him. It is not for me to say how well the secretary has performed his share of the work; enough to say that under the circumstances he has done the best he could, and you are at liberty to pass judgment upon it.

PRAISES THE PRESIDENT'S WORK.

But it may not be out of place for me to say a few words about President Seabrook. During the year I have been in constant communication with him and always found him kind, courteous, gentlemanly and unassuming.

William Halsey, president of the National Association of Master Plumbers, in his address at the twenty-seventh annual convention held at Detroit last June, said:

"The organization work of the association devolves not upon the president of the National Association, but upon the local and State officers and members. Our members in some States have been very active in building up the association this term, as they have been in past years."

President Halsey evidently did no organization work, but President Seabrook has not ceased to be at it from the beginning of the year to the end. In his report he undoubtedly will give a summary of his labors, which I have no right to touch upon.

Of President Seabrook's work I cannot speak too highly. Lest you think me extravagant in his praise, I will quote from Secretary Barnard's third annual report to the Cleveland convention as follows: "By his (Mr. Seabrook's) zeal and efforts, much of the good work that has been accomplished is due. I can assure you (which you undoubtedly know) that he and his paper have been very large factors in the growth of our work."

What was true two years ago can just as truly be said today, only it should be said with tenfold emphasis.

According to our constitution and by-laws, the secretary is required "to make written report at each annual convention of all moneys received, the standing of each local association and individual memberships, and arrearages of same; also increase and decrease of membership." (The tabulated forms were presented.)

The total membership last year was 972, the increase above all losses being 43.

STATISTICS OF CONDITIONS IN LOCAL ASSOCIATIONS.

At the Cleveland convention, the Cincinnati delegates offered the following resolution:

"Resolved, That this association ascertain and keep on record for the information of the locals a record of the working conditions in the various locals, to-wit: Wages paid, hours of labor per day, hours of labor per week, union or open shop, etc."

These resolutions were adopted and, like many other resolutions, were forgotten.

When the present secretary came into office he determined to gather the much desired information. Some of the locals responded almost to a man; others were very slow in answering, and because of this delay the secretary did not tabulate the returns and did not put them in a card index system for ready reference, as the information obtained richly deserves.

I present to you an original sheet from the information obtained, and recommend that the secretary be empowered by this convention to gather such information and statistics as shall in his opinion (or in the opinion of a committee appointed for the purpose) seem valuable to the National Association, to local associations and to individual members.

THE OFFICE EXPENSES OF THE SECRETARY.

Knowing that the National Association did not receive any more money than it could make use of, the secretary determined to make that money go just as far as possible, and to save every dollar he could; and therefore made use of all the former secretary's books, blanks and envelopes, and only ordered new letterheads for his office through President Seabrook, who, at the same time, was having his office stationery printed.

The actual expenses of the office have been:

For freight, cartage and expressage	$12.06
Expenses to attend the convention of the National Fire Protection Association in New York, and visiting the Brooklyn, Manhattan and Jersey City associations	24.60
Printing membership certificates, etc.	14.50
Stenographers' services	9.15
Printing statistical blanks and circular letters to the associations (bill not yet in hands of treasurer)	31.00
Postage and sundries	18.97
Total	$110.28

Robert Kain as chairman presented the report of the Committee on Legislation, referring to the difficulties in formulating and securing regulation, and recommended that each local association appoint a member to work in conjunction with the committee to obtain amendments in building codes in requiring use of sheet metal for roofing. Reports were made by delegates from cities all over the country in which it was shown that many locals have taken up this work during the past year. In no one point brought up during the day was greater interest shown than that contained in Mr. Kain's report. After much discussion the report was adopted.

On motion, the amendment to the By-laws reducing the entrance of individual members to $2 was adopted. The chair appointed the following committee on Resolutions: George P. Werner, Galveston; E. S. Bortel, Philadelphia; Charles Kobmann, Cincinnati; Robert Yoerger, New Orleans; Robert J. Brayley, Providence.

After adjournment of Wednesday afternoon's session the Local Secretaries' Club held a meeting, presided over by J. H. Brown. The paper of W. H. Barnard, Norfolk, Va., was read by Mr. Brown, and other papers were prepared and read by F. F. Verges, Cincinnati, and J. H. Brown. A committee consisting of R. R. Reeder, F. F. Verges and F. J. Hoersting was appointed to prepare a written report to be submitted to the National Association.

LOCAL ASSOCIATIONS, THEIR CONSTITUTION AND BY-LAWS, AND THEIR RELATION TO THE CONSTITUTION AND BY-LAWS OF THE NATIONAL ASSOCIATION.

PREPARED BY W. H. BARNARD.

This is a subject of great importance, but one which is oftentimes overlooked in the formation of Local Associations. The Constitution and By-Laws of all Local Associations of Master Sheet Metal Workers *should in every detail conform to those of the National Association.* The Master Sheet Metal Workers throughout the country should get it out of their heads that the National Association of Master Sheet Metal Workers is a trust or combination. The National Association of Master Sheet Metal Workers has never been organized to conflict with the laws of any state and their aims are entirely lofty and legitimate. Their Constitution and By-Laws have been prepared with great care, with the advice of legal counsel, and if Local Associations of Master Sheet Metal Workers, in organizing, will make their Constitution and Laws conform to those of the National Association they will be entirely safe from litigation and conflict with state laws, which in some cases are very stringent and exacting. Where they depart from this, and make their Local By-Laws without any regard of conformity to the laws governing the National Association, then they do so as their peril, and if they get themselves in trouble or in litigation they have themselves to blame and not the National Association.

RATES, OR INCOME OF LOCAL ASSOCIATIONS.

This is a very important subject, and one that can be profitably discussed from many standpoints. It is a feature of Local Association work that will always give great concern to Local Associations. In the first place, it must be conceded that a "fat treasury" makes a Local popular with its members. Show me a Local with a healthy treasury, and I will show you a busy, thriving, enthusiastic Local. In my judgment it should be one of the fundamental principles and purposes of a Local to have a healthy treasury, and one which will constantly grow. Let every member have an equal interest in the treasury, and you will always be in a position to deduct from his interest any fines that he may be subjected to. Many men do not care how much or how often you fine them if you have no way of collecting it, but he hates to pay a fine if he can't help it, and when you are in a position to make him pay, he will not commit the offense. This is a very interesting subject and can be handled successfully if left to sober thought and unselfishness in lieu of stubbornness and selfishness.

RATES.

This feature of your work should be broadly and generously handled. Remember that there are more poor concerns than rich ones. Remember that you want all Sheet Metal Workers in your Local whether big or little. Don't handicap the little man; let the rate for coming in be low, and when he gets in let the Local be of such value to him that he cannot afford to be out of it.

DUES TO YOUR LOCAL.

This is a point which I approach with some diffidence, but I would say, "Don't be cheap." Remember that your Local must live, and live decently. Its income should be entirely sufficient to meet all its expenses. If employers of men would be perhaps one-tenth as liberal as the men they employ, and support their organizations as liberally or loyally as their employes, then we would have busy, active, hustling Locals, which would always have more than enough money in the treasury to pay the expense of a complete delegation of representatives to a National Convention. A Local Association which fixes its rate of dues too low humiliates

itself in the start, and dooms itself to an early death, and consequent condition of demoralization. Get your income from other sources than initiation fees. Don't wound your new member by capturing him and "taking his wad," but *get him in and win his confidence* and assistance in making your Local useful to him, and he will be proportionately liberal with his dues. Prove to him that his association with you is a wise and profitable thing, and the thing is done. Many a little man has come into a Local, and when he has become interested, he has been the very life of the Local, and in some cases, has made the big man bigger and broader. The National Association of Master Sheet Metal Workers wants to be useful to you. It extends its hand with good intention. It seeks to make no money out of you. Its purpose is broad and entirely unselfish. Let every Local Secretary be a busy, active worker in his Local and see to it that he makes a stirring and helpful report of his charge for a past year to the National Association when it assembles in Annual Convention.

On Wednesday evening a series of lectures were given in the Convention Hall. At 8 o'clock there was a talk by Philip Schaefer of Follansbee Bros. Co., Pittsburg, Pa., showing various methods and processes required in the manufacture of high-grade roofing tin plate. Mr. Schaefer had purposed using lantern slides to illustrate his address, but they were lost in shipment. At 8:45 o'clock an address illustrated by lantern slides was delivered by H. N. Taylor of the N. & G. Taylor Company, Philadelphia, on the "Superiority of Good Tin Roofs." At 9:30 o'clock a lecture presenting the merits of Toncan Metal Sheets was given by F. M. English of The Stark Rolling Mill Co., Canton, Ohio. Mr. Schaefer's and Mr. Taylor's address and the lecture of Mr. English follow:

THE MANUFACTURE OF TIN PLATE.

BY PHILIP SCHAEFER.

Mr. President and Gentlemen:

In coming before you tonight, it was my intention to deliver a brief talk on the manufacture of tin plates and illustrate some parts thereof with stereopticon views. Unfortunately, man produces and the express company disposes, and so when I reached here today I found that the magic lantern slides had not arrived, nor are they here as yet. In consequence I am obliged to deliver this talk without the aid of the views, but in order, however, that you might follow me on some of the points I shall make, I have had placed in your hands this little booklet, which will illustrate some of the points, and I will give you the page numbers as we come to them.

It is my intention to deal with the subject of tin plate making from the ground right up; in other words, from the iron ore, pig iron and other raw materials that are used in order to deal with the actual manufacture at our mills at Follansbee.

THREE METHODS OF MAKING STEEL.

In the first place there are three methods or processes of making steel—the crucible, which is used mostly in the manufacture of high carbon steel, such as is employed in the making of edge rolls, machines, etc.; the Bessemer method or process, and the open hearth process. It is by this latter process that those famous old Welsh plates of twenty and twenty-five years ago, such as the "Worcester Lily," "Gilbertson's Old Method," etc., were made, and it is this process that we use throughout at our mills, and which I purpose now to describe.

By referring to pages 5, 7 and 8 in the booklet which you have, you will notice piles of raw materials, such as limestone, iron, pig iron, scrap, etc., all of which can be seen at any time in our mill yards. These raw materials are all needed in making steel by the open hearth process. It is interesting to realize that in making a sheet of tin plate, we are compelled to call for our raw materials on all parts of the world; the limestone and pig iron, also iron ore, come from various parts of the United States, the ferromanganese from Europe, while for the coating, we draw our pig lead from Kansas, Illinois or Missouri. Our pig tin is furnished by Asia and the palm oil by Africa.

We have loaded the limestone, pig iron, scrap into steel charging boxes that are placed three on a buggy or flat top car and a number of flat top cars made up in a train. We convey this train into the open hearth plant and in front of the furnace. The open hearth furnaces at our mill have a capacity of only 30 tons in order to better the quality of the material, instead of the average 50 to 60 ton furnaces, resembling nothing more than high bake ovens. They are built of vitrified brick, capable of withstanding the most intense heat. From the illustration in the booklet, you will get an idea as to their appearance. You will notice that there are three doors in the front of each furnace, which doors are opened by compressed air; in each door there is a round peephole 3½ or 4 inches in diameter, which enables the superintendent or the melter to observe the progress of the heat. Having drawn the train of raw material before the furnace, there is an electric charger having a heavy long arm, at the end of which is affixed a key, that when the operator lowers the arm the key at the end of same slips into a slot at one end of the charging box; the charging box is lifted, the door in the furnace raises, the charging box with its contents is pushed into the furnace, the arm of the charger revolves backward and forward and the contents, limestone or other raw materials, are emptied into the furnace. The limestone is always run into the furnace first. This as it melts and becomes fluid gradually works its way up through the pig iron and steel scrap getting as a flux and carrying with it to the surface the dirt and impurities as well as the excess carbon, phosphorus and sulphur, which we desire eliminated.

To properly make a heat of open hearth steel requires from 8 to 12 hours. At various stages of the heat, as it nears completion, the chemical analysis is taken in order to make sure that the molt and metal have been purified of all the impure and injurious elements. An analysis is also taken after the heat has been poured, so that we can be absolutely sure that the open hearth ingots are of the best character entering into the manufacture of making the best and most durable roofing plates. I want to here digress for a moment, and say as against this method we require 8 to 12 hours, the Bessemer process takes only from 15 to 20 minutes, and it is impossible by the Bessemer process to take a chemical analysis of the steel. The quality being judged solely by the eye of the operator, who watches the color of the flame, naturally the Bessemer process is cheaper. Also naturally, it is impossible to produce the best roofing plates by using steel made according to this process.

We will now assume that the raw materials have been in the open hearth furnace for the necessary length of time and we are ready to pour the molten metal. In the meantime everything has been gotten in readiness at the lower end of the furnace where the tap hole is located. This tap hole has been during the progress of a heat sealed up with sand. It is now tapped. The molten metal then in a sizzling, bubbling mass flows into a tank and then into a 30-ton ladle until the furnace has been completely emptied. The slag during the pour melts and being of lighter weight remains on the top of the ladle just as it did in the furnace. This ladle is now run to a crane and we are ready to pour the fluid metal into the ingot mold. There are two methods of doing this pour. The one is known as the top pour and consists in having the metal flow from the ladle into the top of the ingot molds. This method is very unsatisfactory where a good quality of ingot is desired, in that the fluid metal is constantly bubbling and boiling, and as the ingot cools it is more or less spongy. Furthermore, there is also danger of slag entering into the steel when the top pour is used, and as the contents of the ladle gradually diminishes. I will now ask you to refer to pages 15 and later to 13 in the book. The one shows a sectional view of the ingot molds and central tube or funnel, as well as the channels which are used in the bottom pour. All the molten metal as it

leaves the ladle in the bottom pour passes through this central tube, and thence into vitrified brick channels, which radiate from the central tube and in which are holes, over which the ingot molds are placed. The molten metal as it leaves the central tube passes through the channels, up through these holes and into the mold, where it raises slowly and gradually into the mold, thus resulting into a solid ingot, free from piping or blow holes or air bubbles and also entirely free from the slag. After having been poured into the molds, these are allowed to cool until the ingot molds can be removed, after which the ingots are either piled up or are moved by an electric charging machine to the reheating furnace, where they are allowed to soak for 6 hours in a furnace heated by natural gas. After this time they have become white hot. This electric machine, which has the power of revolving upon itself as well as moving backward and forward, comes forward, takes the white hot ingot from the furnace and places it in the hammer, where a crew is in readiness to treat it. Too much importance cannot be laid on this method of working up the ingot, because this hammer, which is capable of having an 800-ton blow as it rises and descends hammering and rehammering, the ingot removes any danger of blow holes or air spaces in the billet, and at the same time makes the open hearth ingot more ductile, gives it more tensile strength and better working qualities.

Another important feature is that in hammering the ingot instead of rolling it, as is the case in most steel works, the scales that are raised by the hot ingot coming in contact with the air are entirely removed, whereas if the ingots are rolled much of these scales are necessarily rolled into the billets and result in imperfect sheets. It is really surprising to see the amount of scale that is in this way knocked off, the flakes sometimes being as much as ⅛ inch thick by 6 or 8 inches square. After these ingots have been hammered and rehammered they have assumed a shape 5½ inches square by about 10 feet long. They are cut into three or four billets, depending upon the thickness and size of the bar desired. These billets, while still in their red hot condition, are properly carted in steel buggies to the bar mills, where they are put through a system of continuous rolls until they have come out at last rolled into a bar 8 inches wide, ¼ inch by 1¼ inches thick and 20 to 30 feet long. The size and thickness of the bar is determined by the gage and length of sheets desired. This bar then moves along a table until it reaches the bar shear, where it is sheared into proper sizes, the shearing of the bars depending upon the sheets wanted, thus if you want a 20-inch sheet, it would be cut 20 inches long, or a 30-inch sheet, the bar is 30 inches long. The bars after being sheared are put into a steel basket open on one side, which is submerged in a tank of water; the object of this is not only to cool the bar, but also remove all the scales that may form by the bar coming in contact with the air.

THE HOT MILL.

We are now speaking of the hot mills. The hot mill consists of one set of rolls and two furnaces known as the pair furnace and the sheet furnace. A hot mill crew consists of eight, the roller and helper, doubler and helper, heater and helper, catcher and the screw boy. The roller has charge of the crew and is responsible for the character of the work turned out. Having heated the bars in the pair furnace for about thirty minutes, these bars are now taken out in pairs and rolled, being rolled one at a time alternately; as one bar goes between the rolls the other bar is taken back over the top of the roll by the catcher. On the other side they are making five passes slowly through these rolls, by which time they have assumed a length of about 30 inches. They are now placed on the sheet furnace, reheated, brought out again and this time rolled in pairs, that is, two sheets together, and have sufficient passage to increase their length to 60 inches. They are now doubled again, making them 30 inches long, reheated again, rolled this time, four sheets to the pack, until their length has again increased to 60 inches. They are once more doubled to 30 inches, reheated and are this time given their last rolling in packs of 8 sheets to whatever size you may desire, either 56 or 60 inches. They are now laid aside, so that they might cool, after which the sheets are taken to the square shear where the edges are trimmed off and the sheets sheared into whatever size tin plates may be wanted. After this they are ready for pickling.

PICKLING.

Here I will refer you to page 26 in "Tin Truth," where a pickling machine is shown. In order to be pickled the sheared sheets are placed loosely between prongs on a steel crate or basket which hangs from an overhead rail. This crate having been loaded, is shoved forward and attached to one arm of the pickling machine. This arm then lowers and raises quickly and from a certain depth to entirely submerge the sheets in the pickle, which consists of a strong sulphuratic acid. This operation continues for about 20 minutes, after which the crate is attached to the other arm of the pickling machine and goes through the same operation, excepting in this case the sheets are soaked in pure clear running water, in order that the acid might be thoroughly removed.

IMPORTANCE OF GOOD PICKLING.

It is of great importance for the pickling to be thoroughly done if good lasting roofing plates are desired. If the sheets are not thoroughly cleansed of all foreign matter and dirt, they will not take the coating, if on the other hand they have not been thoroughly cleansed the acid is not entirely removed, the acid crystal will be formed on the sheets and since this can easily escape detection and be coated they are more dangerous than the uncoated spots, which can be detected; besides any such acid crystals are bound to cause havoc later with the tin roof, and the many tin roofing troubles about which complaints have been made have been due solely to improper pickling or cleansing. After having been pickled and cleaned, the sheets are now assorted; those that are not properly cleaned are returned for further pickling. Those that are found satisfactory are piled in steel or cast iron bottoms of enameling boxes. They are piled for 20 x 28 size in two piles about 4 feet high which weigh about five tons. After this, the cover is placed on the enameling boxes and this is sealed with sand, in order to entirely exclude the air. Three of these boxes are now ready and loaded into a steel carrier, which is then shoved into another furnace. If you will refer to page 27 you will see this illustration. The sheets remain in the annealing furnace for 15 hours, after which they are taken out and allowed to cool, which requires another 24 hours. After the annealing box covers are removed from the sheets, it is found that the sheets, especially the open hearth, are exceeding soft and porous, being in fact softer even than soft copper. Furthermore, the edges and corners of the sheets are turned and it is necessary, in order for this difficulty to be overcome, that the sheets be cold rolled. Sheets intended for good roofing plates should not be given more than two passes in the cold rolled, since to cold roll them more than this closes up too tightly the pores in the sheets and does not permit the coating which is applied to thoroughly permeate the same. After having been cold rolled, it is found that the sheets have become too stiff for proper working in tin plates and it is necessary that they should be given another annealing. This time the annealing lasts only 10 hours. They are thus again withdrawn from the furnace and allowed to cool. After all this annealing and cold rolling and continual handling of the sheets will then be found to have accrued a slight acid, and since they cannot be properly coated while in this condition another pickling is necessary. They are again pickled in the same manner as at first described, though this time in a weaker solution of acid, are once more made clean in clear running water and are then placed in a tank of pure water, where they remain until the tin man is ready to coat them. In passing them in the tank of water, it is done to keep the air from them, which would again raise an oxide.

COATING SHEETS.

We now come to the coating of sheets. There are three methods of coating plates. The one is known as the "Thomas and White," or single stack; only one man and a boy is required to work the single stack; in fact in some mills where quality cuts no figure they work only boys. The tin man takes a dozen and a half or two dozen sheets out of the tank

of water, places them within reach by his side, takes up a sheet at a time and shoves it with the flux in the pot and the metal until the lower end of the sheet is grasped by rolls, which then guide and fix the coating for the sheets. and at last on the other side are run, where the next sheet is grasped by tongs by the boy and run into a branding machine where the surface oil is put on. This is all there is to this unsatisfactory method of coating. You can readily understand how impossible it is to produce good lasting plates by this method and only cheap ternes and bright cokes should be attempted in the single stack. The combination method, which will be the next, required an extra man for each stack and also much more metal. After the plates have been in the one coating, they are now plunged into a pot of pure metal and thus into rolls in a pot of palm oil. These rolls serve to distribute the coating uniformly over the entire sheet and also to regulate by their speed the amount of coating. It is the opinion of some sheet metal workers that the amount of coating carries out the weight in which the rolls are squeezed, that is, while squeezing the rolls they reduce the amount of coating. This is indeed wrong. The palm oil is used to cut off the surface coating. The speed of the rolls determine how much coating the palm oil should cut off. The heavily coated sheets are now placed on a bench and allowed to cool and then go through the branding machine to remove the surface oil, after which they are passed through rapidly rovolving rolls, which clean them of bran and dirt which may adhere to the sheets. The Morewood process, which is the last of the three methods, is similar to the common stack work, except that before the tin is given the regular coating they are soaked first 20 minutes in pure heated palm oil and later on an additional 20 minutes in a pot of pure metal. It is unquestionably true that roofing plates can be obtained today that are just as durable as any plates made. By the Morewood process are obtained those plates which gave such excellent service 30 and 40 years ago, and which under similar conditions shall give equally good service.

The plates have now been coated, are taken to the assorting room, which at the Follansbee Works is a room about 150 feet long and 50 feet wide, with rows of windows on either side the full length of the building and the roof lined with skylights. It is very important that as near daylight as possible should be obtained. The assorting is done by experienced men. As they assort the sheets they place them in three piles: primes, menders and wasters. The menders are such sheets as show slight surface defects and can be readily remedied by retreatment in the tin house, and they are accordingly returned to the tin house for such treatment. The primes, and in this of course we are speaking only of terne plates and roofing plates, are taken to the stamping machine and are embossed with the brand name, after which they are counted and packed in boxes 112 sheets to the box, and assorter's slips with the number or the initial of the assorter and the counter is placed in each box, in order that if any mistakes are made we will know where to place the blame, and the boxes are now nailed up for distribution to the various parts of the country.

I have now concluded the description of tinplate manufacture as practiced in the Follansbee Hammered Open Hearth Tinplate works. I regret more than possibly you can the absence of the stereopticon views, which would have enabled me more fully to point out to you some of the particular methods which are specialized in our mills. If you have followed me however, as I hope you did, in those booklets, you have been able to keep in intelligent touch with my description. In outlining all these operations, I have been able to touch only on the processes and have been unable to describe or elaborate on the niceties. We realize of course how impossible it is for all our friends and customers to visit us at the Pittsburg Office and thereby have the opportunity of inspecting our plant, and inspect more intimately something as to the method of our manufacture and it is because of this that we had thought in a manner to bring our mills to you through these stereopticon views. I shall say though in conclusion that we will be very glad indeed to welcome any of you at any time at our Pittsburg office to take you through our plant and to extend to you any courtesies possible. Gentlemen, I thank you.

SOME PROOFS OF THE SUPERIORITY OF GOOD TIN ROOFS.

BY H. N. TAYLOR.

I come before you as an enthusiastic advocate of good tin roofs. The only sure test of a roofing material—the test of actual service—has shown that good, heavily coated, handmade tin closely approaches the ideal form of roofing. This I hope to demonstrate to you by means of a number of lantern slides and by interesting cases taken for the most part from our files. I speak with some knowledge of this subject, as the company I represent have been specialists in roofing tin of the highest grade for more than seventy-five years.

Let me say at the start, however, that this talk is not intended as a "puff" for N. & G. Taylor Co. or for "Target and Arrow" tin.

GOOD TIN AN IDEAL ROOFING.

I accepted this invitation to address your convention in the hope that I might be able to give you some useful selling points to present to any person who wants a first-class roof. I shall resist the temptation, therefore, to tell you something of our exclusive processes, and the slow, thorough methods employed at our works, as handed down from the early days of our business, and shall confine myself closely to my subject, which will interest you more.

I said that good tin fulfills practically all the requirements of an ideal roofing, and by this I mean that it is in no sense an experiment, but has been thoroughly tried and its

A 63-Year-Old Tin Roof on Erie Railroad Station at Monroe, N. Y.

value proven in more than one hundred years' actual use. It is easily applied, and at a moderate cost. Using the best tin and good workmanship, the cost of the finished tin roof should run from $8.50 to $10.00 per square. Compared with this you have a very much higher cost for copper, and a cost of about $5 to $6 for slag or gravel. Tile, slate and shingles need not be considered, as they are used chiefly for architectural effect, and lack many of the practical advantages of a good tin roof.

LONG LIFE OF TIN ROOFS.

A composition roof, however, is made of perishable materials, and has seen its best service at the end of ten or fifteen years. On the other hand, forty and fifty years is not too much to expect of a well-laid tin roof, and we commonly find these old tin roofs in as good condition after such long service as when first laid.

COSTS LITTLE TO MAINTAIN TIN ROOF.

To keep a tin roof in perfect condition requires very little care or cost. A coat of paint at four- or five-year intervals is sufficient to keep the exposed surface in good condition. The cost of this painting should not run over 50 cents per square, and on large roofs will probably figure considerably less. Based on these figures we find the actual cost per square of a forty-year roof of good tin to be 32 cents yearly, including first cost and subsequent painting. Three composition roofs in the same time would cost per square 45 cents yearly, four composition roofs 60 cents yearly—cost of remov-

ing the old roof each time not included. But the tin-roofed building in that time has had uniform protection against the weather, against lightning and fire, while the succession of tar roofs have been a source of constant trouble and expense, and a fire risk as well.

FIRST COST, GOOD INVESTMENT.

Show your customers the wisdom of paying a little more at the start for a high-grade article. The first cost of a good tin roof represents an investment, adding permanently to the value of the building. At this moderate figure a durable metal roof is secured that can be expected to last in good condition as long as the building stands. While a low price has its charm for some, and while a guarantee may quiet a multitude of doubts, it cannot make a good roof of a poor one; and the ten-year guarantee that accompanies most cheap composition roofs provides for nothing more than a patch-up of the roof if it leaks within ten years. The painter is a more welcome visitor than the tar-wagon.

If in any way a tin roof is damaged, it can be repaired quickly and cheaply, without allowing serious damage to the building, no matter what the weather conditions may be.

Tar-and-gravel and other composition roofs can only be repaired in clear weather.

LIGHTNESS, A VALUABLE FEATURE.

Another advantage that I mention here, as it cannot be illustrated by lantern slides, is the extreme lightness of a good tin roof. This is an important advantage, often overlooked.

Fire Protection Afforded by Tin Roofing—Hunsberger Warehouse, Philadelphia.

Good roofing tin, laid IC thickness, standing seam, weighs close to 65 pounds per square. Shingles come next at 400 pounds; then 4-ply composition, 525 to 575 pounds; slate, 3-16-inch, good grade, 650 to 700 pounds; Spanish tile, 800 to 850 pounds; shingle tile, 1200 to 1800 pounds. A sufficient saving can often be made in the cost of a lighter construction of roof framing or supporting walls to more than offset the higher cost of tin over cheap but heavy roofing materials. For covering large surfaces, such as roofs of auditoriums, drill halls, factories, warehouses, etc., good tin is an ideal form of roofing.

GREAT DURABILITY OF TIN ROOFS.

To my mind, the most important feature of a good tin roof is its remarkable durability—assuming that the best tin is selected, that it is applied by competent workmen, and given reasonable care thereafter.

When we come to gather evidence on this point the amount we find available is overwhelming. As well offer the thirsty man a lake to drink from. The briefest search is bound to show tin roofs in good condition after many years' service. I confess that I have been almost staggered by the amount of proof available for my use, to illustrate this one point alone. Philadelphia of itself could afford a sufficient number of examples to provide views for an entire evening. I have, however, selected a number of representative roofs from our files and have added three or four cases sent in by others, and these will now be illustrated by means of the stereopticon. I shall describe each of the views as they are thrown on the screen.

ILLUSTRATIONS OF SUPERIORITY OF TIN ROOFS.

The first view (Illustration No. 1) shows an old residence at Fulton, New York, on which good, heavily coated tin was used for the gutters fifty-two years ago. This tin is still in good condition today. Several years ago a shingle roof on this building was replaced with tin, the new tin roof being joined to the old gutters.

The next illustration (No. 2) shows an old building at Dennison, Ohio. This tin roof has covered the building satisfactorily for fifty years.

Our files show many other very old tin roofs, which I shall not take the time to show here. The residence of George L. Baker, at Selma, Alabama, was covered in 1859 with a good tin roof laid flat-seam, and the owner reports that it has been in continual service ever since with never a single leak or break of any kind. Judge Morse's office building, at Cherry Valley, New York, was roofed with heavily coated hand-made tin in 1813—sheets of 8 by 12-inch, laid flat-seam; roof about one-fourth pitch. This building was demolished in the spring of 1908, and at that time the roof was found to be still in good condition after ninety-five years' service.

Another tin roof on a store building at Chazy, Clinton County, New York, is still giving satisfactory protection after eighty-seven years.

The residence of Miss Jane Bierne of Huntsville, Ala.—one of the show places of the South—was covered forty-two years ago with a good tin roof. Recently the shingles on another part of this building were replaced with the same grade of tin originally used on the main building.

In 1906 a property owner at Hebron, Conn., reported to us that the tin roof on his house was still in good condition after fifty-eight or fifty-nine years' service.

But we are also interested in the tin roofs put on in recent years.

The next view on the screen (Illustration No. 3) shows a residence at Osnaburg, Ohio, roofed with good tin thirty-one years ago. Frank Bowen, the roofer, writes us that the tin used for the roof, downspouts, etc., is all in perfect condition. Notice the neat appearance of this roof—a good example of the sheet-metal worker's art.

This next illustration (No. 4) shows a building well known to residents of Louisville—the main building of the Masonic Home, covered with a good tin roof many years ago. I consider this a good illustration of the attractive appearance of roofing tin used on a Mansard roof.

Nine years ago 100 squares of good tin were used on the buildings of the Canadian Kodak Company at Toronto, shown in the next view (Illustration No. 5). You will notice that this is the well-known saw-tooth roof construction, with tin on the slopes, metal window frames, and wire glass for the skylights. This is a first-class roof in every respect—durable, clean, fireproof and weatherproof—an excellent example for other factories to follow.

This photograph (Illustration No. 6) shows the new building for the School of Design for Women, in New York City—Pell & Corbett, architects. It is shown as a good example of the modern use of good tin to secure a certain architectural effect, as well as a thoroughly satisfactory roof.

SEA AIR NOT INJURIOUS TO GOOD TIN.

Now, I have heard some opponents of tin roofs try to argue that tin will not last along the seacoast. In view of the direct evidence we have on this subject, this is a misleading statement, if there ever was one. Cheap tin, imperfectly coated, will give out as quickly along the seacoast as anywhere else; but good, heavily-coated, hand-made tin gives as good results, if not better, in the pure air near the ocean as elsewhere, inland. As evidence of this I have selected a few representative cases along the Atlantic Seaboard.

At Newburyport, Mass. (Illustration No. 7), is a house which has an ell roofed with good tin in 1863, a neat type of Colonial construction. The owner states that he paints this roof every two or three years with pure boiled oil and Clifton red, and it has never leaked a drop. The tin on this ell has

outlasted three shingle roofs on the main part of the house, and bids fair to outlast the building itself.

Another case is shown of a roof at Stamford, Conn., on a residence owned by William W. Gillespie (Illustration No. 8), 149 Washington Avenue. This building was roofed in 1871 with good tin, and in 1906 the owner reported that the tin was "as sound today as when it was first put on." Other buildings at Stamford, roofed with the same grade of tin, afford additional proof.

The next illustration, however (No. 9), is a far more striking case. The Stockton Bath Houses were roofed with good tin some twenty-eight years ago. These are located at Cape May, N. J., a famous summer resort, and are within a stone's throw of the surf. The proprietor states that the roofs are painted every three or four years with good red oxide paint and they have never found any sign of failure of the tin. During the bathing season, in summer, the wet bathing suits are hung on lines above these roofs to dry, and the water drips from them upon the tin. Practically all of the important buildings at Cape May, including the huge Stockton Hotel, a corner of which is shown in the background of this photograph, are roofed with good tin, and these roofs are giving entire satisfaction. These buildings are all located on a long point of land almost completely surrounded by salt water.

Visitors to Atlantic City will readily recognize this structure (Illustration No. 10) — the Hotel Marlborough — the largest at this well-known summer resort. Good tin was specified and used on the roof of this building, and should your association decide to follow the example of many others and choose Atlantic City for some future meeting place, you will find many of the leading residences, hotels, etc., there, covered with tin roofs.

The Hotel Windsor (Illustration No. 11), famous for its unique cafe, the Tragmore Hotel and the Seaside are other good examples.

We have reports of many other buildings all along the New Jersey coast, at the various summer resorts, on which good tin roofs are giving entire satisfaction. It is simply a matter of selecting first-class material and treating it right. The string of prominent hotels owned and controlled by the Florida East Coast Hotel Company are all covered with good, heavily-coated tin. Cost was no object in selecting the materials for these buildings; the sole desire was to get satisfactory, lasting roofs. Experience has shown the wisdom of choosing good tin.

Still further evidence, if any is needed, is afforded by the buildings of the United States Life Saving Service, for which we have supplied large quantities of our best tin, for many years past; also numerous buildings connected with coast defense work, such as barracks, storehouses, officers' quarters, drill halls, etc., etc.

The next view shows a case of this kind (Illustration No. 12)—the standing-seam roof on the barracks at Fort Adams, Newport, R. I. The tin roofs on the buildings of the Fort have given such good results for many years past that good tin is used for any new construction work. I repeat that if care is taken in selecting good material, there need be no hesitancy in using it under what may be considered adverse conditions. In railroad work, for instance, where the roofs are exposed to smoke, soot, gases from the locomotives, etc., it is important to use first-class material.

An old station on the line of the Erie Railroad at Monroe, N. Y. (Illustration No. 13), was roofed sixty-three years ago with good tin. That roof stands today as a testimonial to the sheet-metal worker's trade. As the illustration shows, it is unchanged by the wear and tear it has undergone, and we are told that it is apparently as good as when first put on.

Another case, nearer home, is shown in the roof of the Union Station at Indianapolis (Illustration No. 14). Thirty-one years ago this building was roofed with good tin, and and those in charge of the building advise us that in spite of considerable neglect, the roof is still in first-class shape, and is just being given another coat of paint, after a five years' interval.

Contrast of Tin and Patent Roll Roofing in a Fire on North Third St., Philadelphia. Roll Roofing to Left.

Still another case, more recent than this, is found in the Union Station at Albany, N. Y., on the line of the New York Central and Hudson River Railroad. High-grade tin was used to cover the station building, platform sheds, etc., eight years ago. The chief engineer reports these roofs in first-rate condition today.

TIN ADAPTED FOR RAILROAD WORK.

Tin is particularly well adapted for railroad work, as flying sparks, embers, etc., have no effect upon it. Moreover, it has a neat, high-grade appearance which composition roofs utterly lack. This is often an important consideration with our leading railway systems.

I could present many more cases of this kind if time would permit. Probably all of you present are familiar with similar cases. Around Philadelphia we have many of them, one notable case being found alongside the main line of the Pennsylvania Railroad, within the city limits. This is a long coal shed covered with a semi-circular roof of good tin laid in 1876, the year of the Centennial Exposition, and is in first-class condition today, although constantly exposed to the smoke and gases of passing locomotives, directly alongside, on the numerous freight and passenger tracks.

I should like to mention one final case of this kind—an old building at Chester, N. Y., located close beside the tracks

of the Erie Railroad; the tin roof on this building is in good condition after sixty-eight years' service.

TIN ROOFS ON STABLES.

Care must be taken, however, in many cases, to protect the tin from unusually severe conditions. On stables, for instance, it is always best to paint the tin with two coats of good paint on the under side, and to lay on the sheathing-boards some good waterproof sheathing paper, such as "Neponset," well lapped. Good tin laid in this way and kept painted every two or three years, or even longer, has been found to give excellent results on roofs exposed to fumes, gases, steam, etc., generated inside the building, or ammonia, moisture, etc., arising from livestock.

A good instance of a tin roof giving satisfactory service on a stable is found in the illustration (No. 15) before us. This shows the large stable building at Sixth and Willow Streets, Philadelphia, of the Finley-Acker Company, grocers. This building was covered in 1900 with 7600 square feet of IX tin laid on two thicknesses of deadening felt and coated with metallic brown paint. This roof is in first-class shape today, although covering a stable, located directly alongside railroad tracks.

TIN NOT AFFECTED BY HEAT OR COLD.

Another important advantage of a good tin roof is the fact that it is thoroughly proof against all attacks of the weather. Where good tin is used, the building is roofed with a continuous, unbroken sheet of durable metal; neither driving rain, snow, fog nor moisture can penetrate it. Hail has no effect upon it; high winds cannot tear it loose if put on properly, following standard practice. A well-laid tin roof seals the upper surface of the building against the elements.

Moreover, a tin roof is not affected by heat or cold. This is an important consideration for a roofing material intended for general use in all parts of this country, with our extremes of climate.

Tin roofs are equally popular in the Northwest with its low temperatures in winter, as well as in the Southern States, where the tin is exposed to tropical heat during the summer. The slight expansion and contraction of the metal are taken care of by the cleats used to fasten it to the roof, which allow sufficient play.

Now, I have pointed out a number of the chief advantages of a good tin roof, namely, that it is a time-tried article, easily applied, at moderate cost, requiring but little attention to keep in good condition; that it is easily repaired if damaged in any way; is light in weight, weatherproof, and extremely durable.

THE FIRE RISK, AN IMPORTANT POINT.

There remains one other important consideration. In recent years the investigations of the National Fire Protection Association and the National Board of Fire Underwriters have drawn public attention to the tremendous fire losses annually recorded in this country. More and more the architectural profession and the public are demanding that more attention be given to the fire risk; that is to say, the protection of the building itself from fire from outside sources, and the protection of surrounding property in the case of fire starting inside the building. Fortunately for the sheet-metal working trade, you are able to provide roofs that are without a peer, from both standpoints.

The value of a tin surface as a protection against fire has long been recognized. Tin-covered fire-doors and shutters are the highest type recommended by the authorities. Tin roofs have recently been rated as the highest form of roofing for use on sheathing-boards, by a ruling of the National Fire Protection Association. This is an important decision that should be used by every sheet-metal worker as an argument against cheap composition roofs, and other forms of roofing made of tar, pitch, asphalt, paper, felt, canvas, burlap, and similar inflammable materials.

Fire has been known to leap across a tin roof and set fire to a tar-and-gravel roof forty feet distant, without damage to the tin-roofed building. We have a large amount of evidence on this subject, but lack of time prevents me from showing more than a few representative cases.

The next view on the screen (Illustration No. 16) shows a grain and feed storage warehouse in Philadelphia covered with a roof of good tin laid standing-seam. In the spring of 1906 the building to the right was destroyed by fire, rebuilt, and again destroyed by fire in the fall of the same year, and both times the wind carried the flames against the tin roof. Notwithstanding this, the tin roofing successfully withstood the fire and protected the warehouse with its inflammable contents. After each fire the tin roof was found to be in good condition, requiring only the soldering of a few seams and a coat of paint.

Another case of this kind is found in a drug store building at West Point, Miss. This was roofed with good tin in 1873, and the tin is still in good condition today. A bank building to the right of this store was completely burnt out several years ago, but the fire wall and the tin roof prevented the flames from communicating to the adjoining building.

Fire Resistance of 80-Year-Old Tin Roofs—Wetherill Bros. Co. Fire, Philadelphia, March, 1907.

A similar case was reported five years ago from Scranton, Pa. Here the flames swept across the roofs of three adjoining buildings located on Lackawanna Avenue. The central building, occupied by Gunster Brothers, had a tin roof, while the stores on either side were roofed with slag. The flames set fire to the slag roofs, which burned through, carrying the flames to the floors beneath; but the middle building, covered with tin and separated by battlement fire-walls about waist high, was not injured, although the roof was severely exposed to the flames. Hard work on the part of the firemen prevented the fire from getting below the top floor of each of the slag-roofed buildings, but their entire contents suffered heavy damage from water. The morning after the fire, the owners of the tin-roofed building found it necessary to do no more than clear away the ashes from the roof and give the tin a good coat of paint.

The next view (Illustration No. 17) shows on the left the ruins of a large club house and on the right a grand stand on the grounds of the Philadelphia Cricket Club, the former covered with shingles, the latter with tin. During the progress of this fire, which was a very severe one, completely destroying the building, a constant rain of sparks and embers fell upon this tin roof. Hard work on the part of the firemen kept the fire from spreading past the end of the grand stand. The tin roof kept the fire from starting at other points.

The next view of a row of buildings at Wills Point, Tex. (Illustration No. 18), shows a very severe test of the value of tin as a protection against fire. The last building on the

right in this row adjoins a lumber yard. This lumber yard caught fire and was entirely destroyed, together with the frame back buildings of the store, so that it was surrounded on two sides by the fire. These buildings are all roofed with tin and separated by fire-walls two feet high. The metal roof and fire-walls prevented the fire from entering the building. Two days after the lumber yard fire the second building from the end of the row caught fire and was entirely destroyed, as shown in the photograph. Again the tin roofs and the fire-walls on either side saved the two adjoining buildings, and on the following day both stores were doing business. Notice that the building on the right has been attacked on three sides without receiving more than slight damage to the front of the building—easily repaired.

Another case of this kind was reported recently from Columbus, Ohio. Two six-story buildings were destroyed by fire in that city—only part of the walls remaining. Adjoining these structures is a four-story tin-roofed building. The owner of this building is firm in his belief that the tin roof was the only agency that saved his building because of the resistance it offered to the red-hot embers and burning debris which fell all over it.

The Lookout Inn on Lookout Mountain, Tenn., was completely destroyed on November 17, 1908, by a fierce fire which originated in the Inn and was carried by the wind to a number of handsome cottages nearby. The hotel was beautifully situated, only a few hundred yards from the site of one of the most dramatic battles of the Civil War, and has sheltered many of the world's notables. The waiting-room and station of the Lookout Mountain Railway Company, roofed with metal shingles, were only about 300 feet from the Inn and about 200 feet from another building which was burnt at the same time. Although the wind was blowing sparks and large firebrands all over these buildings, and the heat was so intense that the metal shingles became very hot, the buildings did not catch fire. Several other buildings located at a greater distance than these, from the fire, were set on fire by sparks and totally destroyed.

Many cases have come to my notice recently of fires that have been started or spread by inflammable roofs—for the most part composition and patent roofings. Such a case occurred recently on one of the large pavilions of the Steel Pier at Atlantic City. The patent roofing was set on fire by crossed electric light wires and the building was considerably damaged before the fire could be put out.

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The view on the screen (Illustration No. 19) is a remarkable photograph of a fire on North Third Street, Philadelphia, in January of this year, when several large buildings were destroyed. This illustration gives a graphic comparison of the superiority of tin roofs over patent roll roofings. On the right are two tin roofs, which held together all through the fire, although the buildings below were completely burned out, leaving the tin hanging intact from the coping of the party walls. The fire started in the tin-roofed buildings and spread through a passage way to a large slag-roofed factory in the rear, which burned very fiercely, the tar-paper adding fuel to the flames. This set fire to the patent roll roofing on the building shown on the left in the picture, the flames from this roofing leaping high in the air. This particular roll roofing is advertised to be "fire-resisting," but in this case it spread the fire and burned fiercely, while the tin roofs held together intact through the entire fire and aided materially in keeping the fire from spreading in that direction. This is another advantage of a good tin roof that I desire to bring out in the following views.

This photograph (Illustration No. 20) shows the old paint factory of Wetherill Brothers Company of Philadelphia, completely destroyed inside by fire in March, 1907. The tin roofs covering these buildings were eighty years old and still in good condition. These roofs prevented the fire from burning through, and the tin held together intact except on the right wing of the building, where the supports were burned entirely away, allowing the roof to fall through. On the left wing you will notice a large section of the roof torn up by firemen. The tin proved such an effective bar to the flames that not even the wooden sign on the top of the main building, nor the wooden clock tower, was damaged. These tin roofs undoubtedly saved the adjoining lumber yard and several slag-roofed buildings from catching fire. Naturally, the owners selected good tin for re-roofing these buildings, well satisfied with the long service and the fire protection given by the old roofs.

PROTECTING WHAT IS BENEATH.

The next series of three views are chiefly interesting as showing how a well-laid sheet-metal roof will hang together and not only prevent fire from burning through but will also protect whatever may lie beneath it.

In this first view (Illustration No. 21) is shown the sheet metal roofing protecting machinery below, after the building had collapsed. This building was occupied by the Norfolk Veneer Company at Norfolk, Va., and measured 100 by 300 feet. It is stated that there was a considerable amount of salvage of machinery from the fire, which would not have been possible had the building been covered with an inflammable form of roofing.

The second photograph (Illustration No. 22) gives another view of the expanse of roofing as left by the fire and the wind. Mr. W. H. Barnard, your former National Secretary, who reports this case, properly considers it a striking argument available for the use of sheet-metal workers as a proof of one of the advantages of metal roofing. These illustrations also serve to show the manner in which a well-laid metal roof will hold together under strain.

The next view on the screen (Illustration No. 23) shows further proof of this point. It shows the manner in which the tin roofing held together in a recent building collapse at Pittsburg. If a tin roof is weakened from below by fire, there is little chance of firemen breaking through. In designing fireproof buildings one of the chief considerations is to do away with vertical openings, which give a strong upward draft, carrying the fire from floor to floor. A roof that prevents the flames from breaking through and carrying sparks to a distance is desirable. Tin roofs possess this characteristic above all other forms of roofing. In fact, the National Fire Protection Association, in selecting tin roofs as the best, based their classification on four points: (1) ignitability, (2) fire-retarding, (3) wearing, and (4) possibility of spreading fire. Outside and beyond these points, the committee also considered the question from the point of view of firemen fighting the fire. The result of this investigation placed tin roofing at the head of the list as the best form of roofing material to use on wooden sheathing boards, ahead of tile, slate, corrugated iron, composition, or prepared roofings, and shingles.

TESTS OF VARIOUS ROOFINGS.

Roofers are recommended to secure for their files a copy of the Quarterly Bulletin of the National Fire Protection Association, published at Hartford, Conn. In this they will find a report of tests of various roofings, made by the Underwriters' Laboratories. This report gives a long list of forty-four brands of composition and patent roll roofings, including all the widely advertised makes which have been tested and pronounced by the highest authority on matters of fire protection, inferior in fire-retarding properties to slate, metal, or good tin-clad roofs, but in a class with those of good slag and good gravel roofs, and superior only in point of fire protection to wooden shingle roofs, a very doubtful distinction.

Still another case to show the value of a good tin roof as an aid in holding a fire in check. This view (Illustration No. 24) shows in the distance the roof of a school house in Germantown, Philadelphia. In February, 1909, fire started on the top floor of this school building, and raged fiercely for one hour, under the tin roof. This roof had been on the building for 42 years and was still in perfect condition. The tin held the fire in check, making the work of the firemen much easier in controlling what would probably have

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Care must be taken, however, in many cases, to protect the tin from unusually severe conditions. On stables, for instance, it is always best to paint the tin with two coats of good paint on the under side, and to lay on the sheathing-boards some good waterproof sheathing paper, such as "Neponset," well lapped. Good tin laid in this way and kept painted every two or three years, or even longer, has been found to give excellent results on roofs exposed to fumes, gases, steam, etc., generated inside the building, or ammonia, moisture, etc., arising from livestock.

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Again I regret that time will not allow me to present more of the numerous cases of this kind from my files. A few views, however, will serve to illustrate this point further.

The view on the screen (Illustration No. 19) is a remarkable photograph of a fire on North Third Street, Philadelphia, in January of this year, when several large buildings were destroyed. This illustration gives a graphic comparison of the superiority of tin roofs over patent roll roofings. On the right are two tin roofs, which held together all through the fire, although the buildings below were completely burned out, leaving the tin hanging intact from the coping of the party walls. The fire started in the tin-roofed buildings and spread through a passage way to a large slag-roofed factory in the rear, which burned very fiercely, the tar-paper adding fuel to the flames. This set fire to the patent roll roofing on the building shown on the left in the picture, the flames from this roofing leaping high in the air. This particular roll roofing is advertised to be "fire-resisting," but in this case it spread the fire and burned fiercely, while the tin roofs held together intact through the entire fire and aided materially in keeping the fire from spreading in that direction. This is another advantage of a good tin roof that I desire to bring out in the following views.

This photograph (Illustration No. 20) shows the old paint factory of Wetherill Brothers Company of Philadelphia, completely destroyed inside by fire in March, 1907. The tin roofs covering these buildings were eighty years old and still in good condition. These roofs prevented the fire from burning through, and the tin held together intact except on the right wing of the building, where the supports were burned entirely away, allowing the roof to fall through. On the left wing you will notice a large section of the roof torn up by firemen. The tin proved such an effective bar to the flames that not even the wooden sign on the top of the main building, nor the wooden clock tower, was damaged. These tin roofs undoubtedly saved the adjoining lumber yard and several slag-roofed buildings from catching fire. Naturally, the owners selected good tin for re-roofing these buildings, well satisfied with the long service and the fire protection given by the old roofs.

PROTECTING WHAT IS BENEATH.

The next series of three views are chiefly interesting as showing how a well-laid sheet-metal roof will hang together and not only prevent fire from burning through but will also protect whatever may lie beneath it.

In this first view (Illustration No. 21) is shown the sheet metal roofing protecting machinery below, after the building had collapsed. This building was occupied by the Norfolk Veneer Company at Norfolk, Va., and measured 100 by 300 feet. It is stated that there was a considerable amount of salvage of machinery from the fire, which would not have been possible had the building been covered with an inflammable form of roofing.

The second photograph (Illustration No. 22) gives another view of the expanse of roofing as left by the fire and the wind. Mr. W. H. Barnard, your former National Secretary, who reports this case, properly considers it a striking argument available for the use of sheet-metal workers as a proof of one of the advantages of metal roofing. These illustrations also serve to show the manner in which a well-laid metal roof will hold together under strain.

The next view on the screen (Illustration No. 23) shows further proof of this point. It shows the manner in which the tin roofing held together in a recent building collapse at Pittsburg. If a tin roof is weakened from below by fire, there is little chance of firemen breaking through. In designing fireproof buildings one of the chief considerations is to do away with vertical openings, which give a strong upward draft, carrying the fire from floor to floor. A roof that prevents the flames from breaking through and carrying sparks to a distance is desirable. Tin roofs possess this characteristic above all other forms of roofing. In fact, the National Fire Protection Association, in selecting tin roofs as the best, based their classification on four points: (1) ignitability, (2) fire-retarding, (3) wearing, and (4) possibility of spreading fire. Outside and beyond these points, the committee also considered the question from the point of view of firemen fighting the fire. The result of this investigation placed tin roofing at the head of the list as the best form of roofing material to use on wooden sheathing boards, ahead of tile, slate, corrugated iron, composition, or prepared roofings, and shingles.

TESTS OF VARIOUS ROOFINGS.

Roofers are recommended to secure for their files a copy of the Quarterly Bulletin of the National Fire Protection Association, published at Hartford, Conn. In this they will find a report of tests of various roofings, made by the Underwriters' Laboratories. This report gives a long list of forty-four brands of composition and patent roll roofings, including all the widely advertised makes which have been tested and pronounced by the highest authority on matters of fire protection, inferior in fire-retarding properties to slate, metal, or good tin-clad roofs, but in a class with those of good slag and good gravel roofs, and superior only in point of fire protection to wooden shingle roofs, a very doubtful distinction.

Still another case to show the value of a good tin roof as an aid in holding a fire in check. This view (Illustration No. 24) shows in the distance the roof of a school house in Germantown, Philadelphia. In February, 1909, fire started on the top floor of this school building, and raged fiercely for one hour, under the tin roof. This roof had been on the building for 42 years and was still in perfect condition. The tin held the fire in check, making the work of the firemen much easier in controlling what would probably have

been a serious conflagration, as the building stands in the midst of a thickly built-up section. Another good roof of the same tin has just been laid on this building, to replace the one damaged by the fire. The roofer in charge of the new work, who helped to put on the old roof, writes that he has never seen such a good example of the value of a tin roof, both in durability and protection against fire.

It remains for me to show three remarkable photographs that I was fortunate enough to secure shortly after a fire in January, 1909, at Goldsboro, North Carolina. Eleven years ago this building—the Odd Fellows' Orphanage—(Illustration No. 25), was covered with good, heavily coated, hand-made tin. The fire started in the attic of the building, and gained considerable headway before it was discovered by plaster and burning woodwork falling from the ceiling of the dormitory, on the third floor, where 120 children were sleeping. The fire burned away the rafters and supports, leaving the tin standing like a shell, in the original shape of the roof.

The next illustration (No. 26) shows the interior view of the building, and the remarkable manner in which the tin has held up after the rafters and sheathing boards were burned away. The temporary props shown in the photograph were put in after the fire was extinguished, to keep the tin from collapsing in the wind. Even the cleats can be seen hanging from the seams. Many persons who witnessed this case remarked that it seemed a pity that the tin would have to be taken off to build up the woodwork beneath, as it was in perfect condition. It is thought that the steep pitch of the roof, together with the stiffening effect of the standing seams, kept the tin roof in shape.

A third view of the same roof also serves to show the tin almost entirely unsupported, but still intact. Had this building been covered with some heavy roofing material such as tar-and-gravel or slate, the roof would undoubtedly have fallen through at an early state of the fire, when the supports were burned away, probably causing loss of life before the children could have been taken out.

TIN ROOF PROTECTION AGAINST LIGHTNING.

A tin roof acts as an excellent protection against lightning. We have no authentic instance of a tin roof damaged by lightning. The expanse of metal on the surface of the building, frequently connected with the ground by means of metal downspouts, constitutes an ideal form of protection against lightning, better I am told, by those who have made a study of the subject, than some lightning-rods. This feature alone has influenced the use of roofing tin in many cases, for covering buildings susceptible to attack by lightning. In this class come barns, farm buildings, warehouses, etc.

The superiority of a good tin roof is further proven by the cases that are reported to us almost daily, of buildings being covered with good tin to replace some other forms of roofing that has turned out unsatisfactory.

One of the sheet metal worker's best opportunities for first-class, profitable work is to be found where the property owner is dissatisfied with some inferior kind of roof.

Good, heavily-coated, hand-made tin is constantly being used to replace slag, or tar-and-gravel roofs and patent roofings that have gone to pieces after a comparatively short time. Illustrations of a few cases of this kind may interest you. The first view (illustration No. 27) shows the factory building of the Standard Arms Company, Wilmington, Del., originally roofed with slag and gravel; this roof had proved very unsatisfactory and was all torn off a short time ago and replaced with 275 squares of good tin.

The next illustration (No. 28) shows a section of the new tin roof on one of the factory buildings of the American Pad and Textile Company, Greenfield, Ohio. Tar and gravel failed to give satisfaction in this case, and the proprietors decided on a roof of good, heavily coated tin.

Still another case is found in a store building at Titusville, Pa., reported by D. D. Hughes & Son of that city. A tar roof was recently torn off this building and replaced with a first class, durable tin roof, the owners being very well pleased with the change.

The old Trenton House, at Trenton, New Jersey, shown in the next view (illustration No. 29) experimented with ninety-four squares of tar and gravel on an addition to the building several years ago. This roof gave them a good deal of trouble, and finally got into such bad condition that the owners had it entirely replaced with our best tin. They state that the old part of the building is still covered with the original tin roof put on 101 years ago—a remarkable record of durability.

Another curious case is afforded in the roof of the main building of Girard College at Philadelphia. (Illustration No. 30.) This imposing structure was built in 1830 and roofed with marble slabs from three to four feet square by four inches thick. These were laid step fashion, overlapping, and it was thought that this roof would never require any attention. It proved, however, a source of constant trouble, as the marble disintegrated, the joints worked loose and leaks developed. Finally, in 1880, the trustees were compelled to consider a new roof, to prevent further damage to the building. The choice was finally in favor of good tin. Accordingly scantlings were bolted to the marble, sheathing boards laid on these, and the tin roof laid over the sheathing boards. This solved the problem, and there have been no complaints of the roof since, the tin being in first class condition today after nearly thirty years 'service.

TIN ROOFING BETTER THAN SHEET COPPER.

Finally the best quality of tin has been found to give better results in long service on the roof than sheet copper. I have evidence of a number of cases of this kind, but shall mention only two. The extensive buildings of the Philadelphia Almshouse were originally roofed with copper. Much difficulty was experienced in keeping the roofs water tight, the expansion and contraction of the metal proving a source of constant trouble. Finally, in 1887, the authorities decided in favor of replacing the copper with the best grade of tin laid with standing seams. This was a very large job of roofing, taking some 886 squares. Those tin roofs have given splendid satisfaction where copper failed to do so, and the roofing problem on these large buildings has been satisfactorily solved.

I offer still another case of this kind in evidence—namely: old Independence Hall in Philadelphia, the home of the Liberty Bell. This building (Illustration No. 31) was originally covered with shingles, then with copper, which failed to protect the valuable contents of the venerable structure, and finally, in 1887, the copper was replaced with first class tin. The wisdom of those who selected this material twenty-two years ago has been fully justified, and old Independence Hall in the Quaker City stands as a testimonial for the use of every master sheet metal worker as a proof of the value of high grade roofing tin.

SALES OF TIN ROOFING INCREASE.

To my mind there is something impressive in the manner in which good tin continues to hold the field against all comers. Experiments come and go, from time to time new materials have their vogue, cheap roofings make pretentious claims, but still the sale of good, durable tin goes on, steady and uninterrupted. There is no need to look for anything better than the old time, hand made tin so readily obtainable today, and at a moderate price. So much roofing tin is used in this country that we naturally hear of some complaints. Destructive paints, poor workmanship, neglect and abuse may cause even the best of tin to fail. Bear in mind that the difference in quality between the best brands and cheap grades is very much wider than in former years, due to inventions and labor saving machinery that have made possible the production of common tin plate at a very low cost. Such tin is unsuitable for roofing purposes, although frequently used under severe price competition. Failure of this cheap material has thrown discredit on tin roofs in many localities. Where the roofer has the opportunity to use good material, however, he will find no difficulty in getting it if he will use good judgment in selecting his brand, and see that it is properly put on the roof.

You cannot expect wool at the price of shoddy, nor good, durable, hand made tin at the price of ordinary extra coated ternes. Salesmanship on the part of the roofer is needed in these days of competition, and it has therefore been my endeavor in this address to present for your use some proofs of the superiority of good tin for roofing purposes. I can per-

sonally vouch for the good quality of the material available for your use.

LECTURE ON TONCAN METAL.

BY F. M. ENGLISH.

The development of Toncan metal was undertaken to meet the demand for a black or galvanized sheet which would be moderate in price and have the highest corrosion-resisting qualities for use in roofing, siding, eavestroughs, conductor pipe and for all other building purposes into which such sheets enter.

In undertaking the development of a sheet of this character, we have been guided throughout by the example set by the old-time iron master and by adapting old-time principles to modern methods as far as possible.

The problem of the old-time iron master, in making the quality of sheet which he did, was infinitely simple as compared to the problem facing the modern iron or steel maker who undertakes to reproduce sheets having the corrosion-resisting qualities of the old-time goods and which also combine all the other qualities requisite in a sheet which must meet modern requirements.

Had we today the same raw materials, the same workmen, the same furnaces and exactly the same conditions, sheets could be made in all respects equal to any that have ever been made, but—it's a big "but"—could the manufacturer with such facilities begin to supply the enormous demand of today and could he reproduce sheets at a price which would permit of their use in the vast variety of ways in which sheets are now being utilized?

To meet the present-day demand for sheets—to enable the mills to keep pace with the ever-increasing consumption, because of the infinite variety of ways in which sheets are being employed—the slow, limited methods and processes of past days cannot be employed or reinstated.

SHEET-MAKING A PROBLEM.

The problem confronting the sheet manufacturer of today is—how to make sheets having the old-time corrosion-resisting qualities together with the necessary working qualities, and at a price which will not curtail their use,—and the problem is no easy one. In other words, the sheet manufacturer of today must "make a dozen blades of grass grow" where one grew formerly—not at the same price and of the same quality, but at a lesser price and of better quality and with higher labor, inferior raw materials, and to withstand much more exacting conditions.

THE CHANGE IN CONDITIONS.

The conditions today to which sheets are subjected as compared to earlier times are also entirely different—the demands and requirements of the trade are far more exacting. The sheet of today to meet modern conditions must not only have the highest corrosion-resisting qualities but they must also have working qualities and be able to withstand strains and stresses, in shaping, forming and handling, never dreamed of in the old days—to say nothing of the vastly changed atmospheric conditions to which they are now subjected. The sheet of today to meet all requirements demanded of it must be better than the old-time sheets, and not only better but cheaper.

In placing Toncan metal on the market as a material in which are combined all the qualifications necessary in the present-day sheet, whether galvanized or black, it is classed as a metal rather than as an iron or steel, because while it has corrosion-resisting qualities equal to the old-time iron it also combines many characteristics of the highest grade mild open hearth steel, making it the ideal material with which to meet all requirements of modern sheet metal practice, in that it will not only withstand corrosion but also the strains and stresses of shaping and forming without fracturing.

It is an undisputed fact that the corrosion-resisting qualities of the early sheets were due entirely to their uniformity or homogeneity, which was made possible through the proper selection of raw materials—through the principle involved in their handling and through the care and attention with which the iron was made. Plenty of time was given the raw materials while in the furnace, to eliminate any excess foreign impurities present and to properly combine those remaining, and also by handling the iron after it came from the furnace in such a manner that segregation did not take place during the reheating or working-up processes.

PROCESS OF CORROSION.

Through modern research and investigation we know that corrosion is caused by the carbon, sulphur, phosphorus and manganese becoming segregated during the process of manufacture, this theory having been fully demonstrated both in the laboratory and under actual working conditions—the corrosive action taking place in the following manner:

ELECTROLYSIS THE CAUSE.

When the impurities—carbon, sulphur, phosphorus and manganese—become segregated in iron or steel, that is, when they are not equally and evenly distributed throughout the metal, occurring in small spots or areas, an electrical current will be set up between these segregated points whenever the sheet in which they are present becomes covered with a film of moisture from the atmosphere. Due to differences in composition, some of these points of segregation become positive, others negative, which when connected by the film of moisture, set up numerous electrical batteries of greater or lesser energy, according to the extent of the segregation, so that there are limitless numbers of small electrical batteries continually at work throughout the sheet. It is a well-known fact that a current of electricity cannot be generated in a battery without destruction or dissolution taking place at the positive pole, so that in any sheet of iron or steel in which segregation has taken place and the surface of which through exposure to the atmosphere has become covered with a film of moisture, there are numerous small electrical batteries at work, at the positive poles of which the iron or steel is being destroyed, resulting in the form of corrosion known as pitting, a form with which you are all only too well acquainted. The more marked or strongly defined is the segregation, the stronger will be the electrical action; consequently the more rapid will be the destruction of the metal or sheet. On the other hand, the less well defined the segregation, the weaker or milder will be the electrical action, and consequently the life of the sheet will be longer. Again, in a well-made sheet of iron or steel in which the impurities have been properly incorporated and segregation reduced to a minimum, the electrical action will be so slight that pitting will not take place, but instead an even coating of rust will be formed over the entire surface of the sheet in such a way that the rust will itself become, to a great extent, a protective coating, greatly retarding the process of decomposition or rusting. It was for this reason that the old-time iron sheets withstood so phenomenally the ravages of corrosion. It was not because they did not rust that caused them to last, but the way in which they did rust, that made them so long lived.

IMPOSSIBLE TO PREVENT RUST.

No iron or steel has ever been made or can ever be made that will not rust in moist air, because it is the nature of all products made from iron ore to rust and in time return to the natural state from which it originally came. But the way in which the rusting takes place can be controlled, thus making the sheet long lived, durable and the most ideal metal for roofing, siding, eavestrough, conductor pipe and similar other purposes.

It has generally been supposed that steel corrodes faster than iron, also that pitting is confined entirely to steel; but this is by no means the case. Both iron and steel pit and corrode, and badly made iron, of which we are getting a great deal today, lasts no better than badly made steel. The opposite of which is also true, namely, that properly made steel will withstand corrosion and pitting equally as well as iron, besides having far superior working qualities.

There may possibly be some question as to how electrolysis takes place in causing corrosion as regards the exact chemical reactions; but that electrolysis actually does take place, and that it is the true cause of corrosion cannot be

successfully disputed. The fact that electrolysis does occur is proven conclusively by the Ferroxyl test, exhibits of which you have all examined. The object of this test is not to show the comparative lasting qualities of two or more pieces of metal but only to prove the theory of electrolysis by practical demonstration. The explanation of the test is this: At the poles of all electrical batteries two elements are always found to be present, namely, hydrogen ions and hydroxyl ions. The hydrogen ions cluster around and indicate the positive pole. The hydroxyl ions in the same manner indicate the negative pole. The Ferroxyl testing reagent is composed of certain indicators, the reactions of which when brought into contact with these two elements have been known for years. Ferroxyl is a weak acid and is of such a nature that when brought in contact with hydroxyl ions it at once produces a pink color; while potassium ferricyanide when hydrogen ions are present, causing iron to be dissolved or corroded, produces a blue reaction. Both of these chemicals are present in the gelatine mixture in which are imbedded the samples which you have examined, the blue color indicating the positive poles where destruction or corrosion is taking place, the pink color indicating the negative poles. No piece of iron or steel has ever been found which when subjected to this test will not sooner or later develop the pink and blue reaction which you have witnessed.

The point involved, then, in the manufacture of iron or steel which is to resist corrosion is to so combine and work up the raw materials that these electrical currents which cause corrosion will be of the mildest form and whose action is not concentrated or fixed through excessive segregation.

CORROSION, A SUBJECT OF IMPORTANCE.

Of the many subjects which are of interest to the sheet metal worker and the user of sheets there is none of such vital importance as the subject of corrosion, and what affects the sheet metal worker also affects the sheet manufacturer, so that the cause and cure of corrosion is of common interest to both.

If the sheet metal business is to grow, expand and assume the position in the world of business which it should, it is absolutely necessary that the sheet metal workers strive in every way to use only such sheets as will stand up for at least a reasonable length of time, and to avoid wherever possible the use of such goods as will prove disastrous to his business and his reputation. As manufacturers of sheets we have long recognized this fact, and for a considerable time have been carrying on a series of exhaustive tests and experiments to produce a material which would be reasonable in price, meet all requirements—both as regards corrosion-resisting qualities and working qualities—thus placing within reach of every worker of sheets a material with which to combat and overcome the ever-increasing prejudice against sheet metal for building purposes, a prejudice which has of late years been steadily increasing due to the unsatisfactory lasting qualities of a large majority of the materials which are now on the market.

PRAISES TONCAN METAL.

The results of our efforts is Toncan metal, a material which combines the essential qualities of high corrosion-resistance, ductility and moderate cost, above referred to.

We have carried on a long series of acid, salt and creosote tests, in addition to carefully noting results of exposure to actual every-day working conditions, and we know that Toncan metal is all that is claimed.

With this necessarily incomplete outline of the qualities and characteristics of Toncan metal, and of the subject of the corrosion of iron and steel, we leave the subject, hoping it will receive from the sheet metal worker the further consideration which is its due. The subject is certainly one of vital importance to every sheet metal worker, because the development and growth of the sheet metal industry will largely be determined by the degree in which corrosion is manifested in the materials adopted and used. The use of highly corrosive material will retard and lessen the demand for the sheet metal work, while the use of better and more lasting material will stimulate and encourage the demand.

The following shows the result of the Toncan Metal Acid Tests, at the chemical demonstration presenting the merits of Toncan Metal, held on Wednesday evening:

TONCAN METAL ACID TEST.

12 hr.—20% Sulph.

	Wt. before. Grams. M. G.	Wt. after.	Loss.
Steel	13.190	.000	13.190
Char. Iron	13.820	11.910	1.910
Toncan Metal	12.077	12.067	.010

Acids, etc., furnished by the Louisville Committee.

THURSDAY MORNING, AUG. 12.

Conferences on the best methods of estimating for and closing contracts were held at the morning session of Thursday. The meeting was called to order at 9:30 o'clock, and the conferences were lead by S. Spiro, Birmingham, Ala. Following this came a discussion of trade relations and policy, in which many of the delegates took part. In this, greater liberality in the attitude of the members of the association toward one another and co-operation to procure from manufacturers and jobbers the recognition of the rights of the contractor and retail dealer were advocated. The roll call of local associations concerning their methods and efforts in the line of trade protection followed, after which adjournment was taken.

Having been duly and officially photographed on Thursday afternoon at the Galt House, the delegates were taken in charge by the Louisville Entertainment Committee at 2 o'clock for a tour of the city and its industries. Special cars were chartered and with a member of the committee in charge of each car to show the points of interest, visits were made to the parks and the principal suburbs. Special trips were made to the plants and warehouses of Louisville firms engaged in the sheet metal business.

THURSDAY EVENING'S BANQUET.

On Thursday evening at 7:30 o'clock the association's banquet was held at the Galt House. J. M. Holstner, President of the Louisville local, was the toastmaster of the occasion. Toasts were responded to by the following: President Seabrook; Hon. James F. Grinstead, Mayor of Louisville; Charles A. Gauss, Indianapolis, Ind.; Otto Goebel, Syracuse, N. Y.; L. A. Osborn, Cleveland, O., and A. T. Enlow, Canton, O. The banquet was a great success. Following was the menu:

MENU.

Celery Olives Pecans Mints

Anchovy Canape
Clear Gumbo in Cups
Lake Erie Whitefish, Planked
Potatoes, Dauphine
Spring Chicken, a la Maryland
Fruit or Waldorf Salad
Ice Cream in Forms
Assorted Cakes
Roquefort or Neufchatel Cheese
Crackers
Drip Coffee

FRIDAY, AUG. 13.

One continuous session on Friday, the closing day of the convention, took the place of the morning and af-

ternoon sessions scheduled to be held. Deferred business was transacted, and reports of special committees and the report of the Committee on Warm-Air Furnaces, were presented. Charles S. Prizer, president of the Federal Furnace League, addressed the meeting, as also did J. M. Holstner, president of the Louisville local.

Election of Officers.

Following are the officers of the association elected for the ensuing year:

President, Edwin L. Seabrook, Philadelphia.
First vice-president, S. Spiro, Birmingham, Ala.
Second vice-president, John Bogenberger, Milwaukee, Wis.
Third vice-president, Frank P. Smith, Norfolk, Va.
Fourth vice-president, Frank J. Hoersting, Dayton, O.
Secretary, Otto Goebel, Syracuse, N. Y.
Treasurer, W. A. Fingles, Baltimore, Md.
Trustees, A. Holtman, Kansas City, Mo.; Thomas F. Black, Brooklyn, N. Y.; Robert J. Brayley, Providence, R. I.

The 1910 convention will be held at Philadelphia.

The singing of "Auld Lang Syne" brought the convention to a close at 2:30 p. m.

List of Delegates.

Following is a list of the delegates who attended the convention:

Frank P. Smith, Norfolk, Va.; Paul L. Biersach, Milwaukee, Wis.; G. P. Schmitt, Milwaukee, Wis.; Edwin L. Seabrook, Philadelphia, Pa.; E. S. Bortel, Philadelphia, Pa.; J. W. Morrison, Philadelphia, Pa.; W. A. Fingles, Baltimore, Md.; C. D. Pruden, Baltimore, Md.; G. W. C. Wiegel, Baltimore, Md.; Charles A. Gauss, Indianapolis, Ind.; R. R. Reeder, Indianapolis, Ind.; A. H. Weinland, Indianapolis, Ind.; A. Holtman, Kansas City; G. W. McFerran, Camden, N. J.; James H. Brown, Rochester, N. Y.; Thos. F. Black, Brooklyn, N. Y.; J. C. Miller, Brooklyn, N. Y.; Robert Kain, Cleveland, Ohio; Jesse V. Dailey, Cleveland, Ohio; H. J. McGrath, Cleveland, Ohio; E. J. Beseman, Hartford, Conn.; Rudolph Strehlow, Peoria, Ill.; George Harms, Peoria, Ill.; H. D. Dickson, Peoria, Ill.; S. Spiro, Birmingham, Ala.; R. L. Hinkle, Birmingham, Ala.; H. Bragan, Birmingham, Ala.; F. J. Hoersting, Dayton, Ohio; David Carroll, Dayton, Ohio; M. Young, Dayton, Ohio; T. P. Walsh, San Antonio, Texas; A. W. Chatfield, San Antonio, Texas; J. M. Holstner, Louisville, Ky.; E. J. Heartick, Louisville, Ky.; E. H. Wagner, Louisville, Ky.; J. P. Williams, Omaha, Neb.; R. L. Carter, Omaha, Neb.; George P. Werner, Galveston, Texas; A. W. Dudley, Terre Haute, Ind.; P. F. Deadey, Terre Haute, Ind.; J. C. Beckwith, Terre Haute, Ind.; Thomas Lee, Cincinnati, Ohio; F. P. Verges, Cincinnati, Ohio; Charles Kobmann, Cincinnati, Ohio; Harry Kruckemeyer, Cincinnati, Ohio; Henry Walter, New Albany, Ind.; August Baker, New Albany, Ind.; R. A. Huncilman, New Albany, Ind.; J. A. Dougherty, Nashville, Tenn.; J. F. Murray, Nashville, Tenn.; C. A. Stevenson, Nashville, Tenn.; Robert Weiss, Jr., New Orleans, La.; Jacob Yoerger, New Orleans, La.; Arthur E. Lamneck, Columbus, Ohio; G. E. Snyder, Columbus, Ohio; Orrin Bennizung, Columbus, Ohio; Robert J. Braley, Providence, R. I.

CONVENTIONALITIES.

The Danzer Metal Works Company of Hagerstown, Md., was represented by Albert Danzer.

The Horan Stay-Hanger Co. of Louisville, Ky., had a display in Exhibit Hall "A" in charge of Geo. J. Ogle.

The Burt Mfg. Co. of Akron, Ohio, occupied room "H," showing different samples of their ventilators. It was a very interesting display.

Robert Ketting, who, as everybody in the trade knows, represents the Tuttle & Bailey Mfg. Co., was on hand giving his usual hot-air talks.

In Exhibit Hall "A" the Abram Cox Stove Co. of Philadelphia, occupied space 7. Chas. S. Prizer and Harvey J. Fueller were busy distributing literature describing their system of warm air heating and ventilation.

The trustees of the association occupied a large parlor on the convention floor of the Galt House, which was a veritable bureau of information.

The James McDonald Sons Co., Cincinnati, occupied space "1" in Exhibit Hall "A." They were represented by H. D. McDonald and Sid. Adelberg.

Col. Al. Bourlier has been appointed manager of the New Gayety Theater at Louisville. The Colonel has had experience heretofore in theatrical matters.

J. M. & L. A. Osborn Co., Cleveland, Ohio, occupied Room "I" and their hospitality was dispensed by L. A. Osborn, E. C. Howard and J. G. Henninger.

The merits of the different manufactures of Merchant & Evans Co. of Philadelphia, were ably shown by J. J. McGinness, W. H. Gardner and R. Frank Smith.

Verdin, Kappes & Verdin of Cincinnati, were showing the models of their sheet metal machinery, and distributing a souvenir in the form of a card case and memorandum book.

Griffiths' Charcoal Iron Mills of Washington, Pa., occupied room "J," and their Mr. J. R. Eriser had an interesting audience while he showed the tests of the superiority of their charcoal plates.

It was a matter of very much regret that Phil Schaefer did not have his lantern slides with him, although his excellent talk was very interesting and instructive, and the by-word now for Phil is "Slide, Schaefer, Slide."

William F. Schweigert, representing the Niagara Machine & Tool Works of Buffalo, N. Y., was very busy during the convention week in the corridors of the Galt House shaking hands with his numerous friends in the trade.

Follansbee Bros. Co. of Pittsburgh, Pa., had a double space in Exhibit Hall "A," where they showed the different samples of their manufacture. They were ably represented by Philip Schaefer, A. J. Hinderer and C. W. Riebel.

J. J. Dufour, representing Meurer Bros. Co., Brooklyn, N. Y., had charge of their display in space "5," which consisted of their high grade tin plates, Anchor ventilators, Spanish metal tile and "Unique" shingles shown in both galvanized and copper.

The Ferdinand Dieckmann Co. of Cincinnati, Ohio, occupied room "F," and their Mr. Otto Dieckmann and Mr. Edward Hoffeld had an interested throng always in their rooms examining their corrugated conductor elbows. They distributed as a souvenir a gold pen with enameled holder.

N. & G. Taylor Co. of Philadelphia occupied room "C" with an attractive exhibit in charge of H. W. Taylor, besides having some interesting literature extolling the many benefits of "Target and Arrow" Roofing Tin. The Taylor people had an interesting exhibit showing a Colonial hand-made lantern perforated, made of their tin, by E. N. Hughson of Clyde, N. Y., an old tinner, 75 years of age. They also showed a hand-made sap bucket made from

their tin by A. L. Weaver of Wilmington, Vermont, who has been a tinner for 50 years.

The Stark Rolling Mill Co. of Canton, Ohio, made an attractive exhibit of Toncan Metal, and their interests were looked after by A. T. Enlow, F. M. English and B. A. Epperson. On Thursday and Friday a card was displayed in their booth showing the results of the acid tests made with Toncan Metal, Charcoal Iron and Steel.

The American Rolling Mill Co. of Middletown, Ohio, occupied room "G," and their Mr. James Aupperle and Geo. Sheets were making quite a number of tests showing the superiority of their American Ingot Iron over steel, and charcoal iron. One of the tests was made by the Accelerated Sulphuric Acid test in evaporating dishes, and another was the Hydrogen test made with glass tubes.

The Louisville delegation are certainly maintaining their record for hospitality. The famous room No. 533 was the Mecca all the week for the sheet metal workers. The paths were marked out on the tiling of the parlor floor by foot-steps in the soles of which were the words "Follow Me." It was commented on a number of times during the week, that although the footsteps pointed towards room No. 533, they were far from being in a straight line.

The hit of the week was made by T. P. Walsh of San Antonio, Texas, one of the directors of the National Association, and president of the Texas State Association, who presented each of the delegates with a Mexican sombrero, and as the delegates all wore them on their trolley ride about the city, they were the observed of all observers. It is needless to add that all the delegates will take home with them as a souvenir of the eventful Louisville week the Mexican sombrero.

HINTS FOR THE INEXPERIENCED BUSINESS MAN.

To the long list of causes responsible for the myriads of failures that clog the business world there must be added one which it seems seldom is taken into consideration. This is ignorance; not the ignorance that implies lack of education, but ignorance of plain, every-day business ways and means. No man expects to enter into any trade or profession as a full-fledged member of the same; but every day men start in the merchandise business for themselves with absolutely no training in the matter of conducting a business of any sort. The result is, in ninety cases out of a hundred, failure.

While it is impossible to tell every individual who goes into business just what to do to avoid the chance of such disaster, it is possible to cite examples which will warn him what not to do. Here are a few instances of "horrible examples" which have come within my scope of observation recently.

M. has a general store in a lively country town. He is honest and sells many goods. The first two years he is prompt in his payments, but gradually finds that he is getting behind, and finally that he is receiving statement after statement with threats to remit at once or account will be placed in the hands of an attorney for collection.

This worries M. terribly; he can't account for it. His business is as good as ever; in fact, he sells more goods than he ever did, and yet, in spite of this, he runs deeper into debt every year. He is careful in buying and is not overstocked. What is the cause of these conditions? The question worries him.

He consults his friend O., an experienced business man. O. looks into the management of the business and there discovers the whole trouble. M. does not keep account of his expenses and loss on goods. He sells his groceries at a certain percentage, which he thinks will net him a fair profit. He has to deliver the goods to his customers, but he calculates "that doesn't cost me anything; I have two delivery wagons; they do the work."

The man does not figure the interest on the money which is invested in the horses and wagons, neither does he figure the repairs, the keeping of the horses, nor the salary of the delivery boys, one being his son, whose salary also should be added to the store expenses. He owns his store and dwelling house, so he calculates: "I have no rent to pay, consequently my expenses are low."

But he does not consider that the capital invested in stock, store, and house would net him a nice income if invested in safe mortgages, and that this interest must be added to the cost of the goods. His two clerks are his daughters, therefore he thinks he has no clerk hire to pay; he does not know that what they earn should be added to the cost of the goods.

He pays insurance on stock, house, and store, but does not charge this up to expense account, because he keeps no account of expenses. He does not add freight and express charges, nor loss on "shopkeepers" nor on bad accounts to the cost of goods. All these mistakes combined have been the cause of M. losing money in his business instead of making it, and he did not know it.

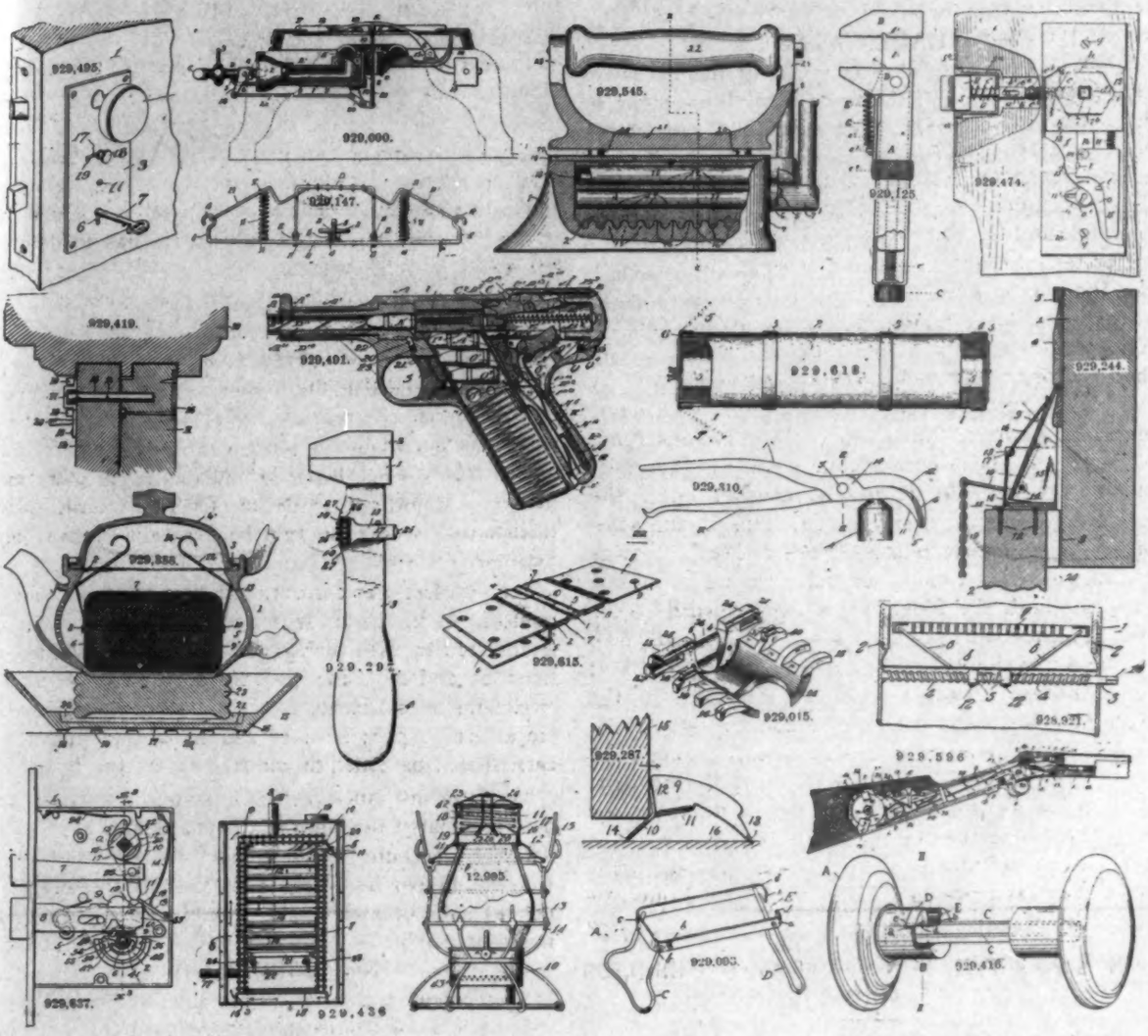
Here is another mistake he made. In the first year of his business he always bought a bill of gloves and mittens amounting to $200. He discounted the bill at six per cent, netting him $12. But a few years later these goods advanced in price and they are sold for "net," but M. keeps on selling them at the old margin, not thinking that he loses the discount of $12 on a $200 bill. He should have added the lost discount on the price of the goods and advanced the price.

These and similar mistakes O. pointed out to his friend. M. was dumbfounded; he had no conception of such business methods. O. made him keep a book of his expenses and sales. He stepped into the business a silent partner with $2,000 capital. This took M. out of deep water, and after following O.'s advice for two years he is now on his feet again and discounting his bills. Without the advice and help of his friend O., he would have been bankrupt in a year.

There are hundreds of merchants in the country, mostly small ones, who never take stock, never keep account of their expenses; they don't know their own standing; they think they are worth something, but are really bankrupts. If their stock were sold they could not pay fifty cents on the dollar.

THEO. O. BROWN.

NEW PATENTS.



928,921—Grate. Robert E. Adams, Mason City, Iowa. Filed Feb. 23, 1909. Serial No. 479,429.

929,015—Safety Razor. Richard H. Reed, New York, N. Y., assignor to the Patent Ownership Company, New York, N. Y., a corporation of New York. Filed June 22, 1908. Serial No. 439,816.

929,090—Gas Stove Regulator. Clarence H. Herr, Philadelphia, Pa., assignor of one-eighth to Henry P. Bridges, Baltimore, Md., and William F. Brookes, Jr., Alexandria, Va., and one-eighth to William J. Conlen and one-fourth to Victor J. Hamilton, Philadelphia, Pa., and one-half to Universal Gas Implement Company, Philadelphia, Pa., a corporation of Delaware. Filed March 10, 1908. Serial No. 420,262.

929,093—Sad Iron Support. Frank Kuhn, Detroit, Mich., assignor to American Electrical Heater Company, Detroit, Mich., a corporation of Michigan. Filed Aug. 24, 1907. Serial No. 389,964.

929,125—Wrench. John L. Garner, Delafield, Wis. Filed Aug. 17, 1908. Serial No. 448,957.

929,147—Animal Trap. Olaf Lund, Esmond, N. D. Filed July 23, 1908. Serial No. 444,963.

929,244—Automatic Window Sash Lock. Claude E. Poteet, Kansas City, Mo. Filed March 10, 1909. Serial No. 482,589.

929,287—Door Fastener. George D. Collins, Springfield, Mass. Filed Oct. 9, 1908. Serial No. 456,973.

929,297—Wrench. Rufus A. Ferguson, Denison, Tex. Filed April 2, 1909. Serial No. 487,562.

929,310—Pincers. Robert N. Johnson and Emil Newberg, Brockton, Mass., assignors to F. W. Whitcher Company, Boston, Mass., a corporation of Maine. Filed April 30, 1909. Serial No. 493,157.

929,388—Coffee Pot. Thomas J. Clement, Atlantic City, N. J. Filed June 13, 1908. Serial No. 438,305.

929,416—Door Knob. Charles Ewing, Tarrytown, N. Y. Filed Dec. 2, 1908. Serial No. 465,736.

929,419—Sash Lock. Louis H. Grau, San Francisco, Cal. Filed Dec. 5, 1908. Serial No. 466,094.

929,436—Heater. John Horst, Harrisburg, Pa. Filed Jan. 11, 1909. Serial No. 471,697.

929,474—Door Lock. George W. Northrup, Brainerd, Minn. Filed July 6, 1908. Serial No. 442,002.

929,491—Automatic Firearm. Joseph J. Reifgraber, St. Louis, Mo. Filed Sept. 26, 1907. Serial No. 394,739.

929,495—Key Fastener. Earl J. Ripley, Erie, Pa. Filed March 19, 1909. Serial No. 484,565.

929,545—Sad Iron. David Brightbill, Lebanon, Pa. Filed Feb. 8, 1909. Serial No. 476,603.

929,596—Automatic Gun. Richard E. Jeffery, Piedmont, Cal. Filed July 14, 1908. Serial No. 443,410.

929,615—Hinge. Frank V. Madden, Vanderbilt, Pa. Filed May 3, 1909. Serial No. 493,630.

929,618—Package of Nested or Knockdown Stovepipe Joints. Ralph A. Metzger, New Philadelphia, Ohio, assignor to the Ohio Stove Pipe and Manufacturing Company, New Philadelphia, Ohio, a corporation of Ohio. Filed Feb. 27, 1909. Serial No. 480,452.

929,637—Lock and Latch Mechanism. William H. Thomas, Whittier, Cal. Original application filed June 28, 1907. Serial No. 381,350. Divided and this application filed Dec. 23, 1907. Serial No. 407,870.

Reissue, 12,995—Lantern. William S. Hamm, Hubbard Woods, Ill. Filed June 7, 1909. Serial No. 500,781. Original No. 910,673, dated Jan. 26, 1909. Serial No. 397,012.

Trade Report.

HARDWARE.

Further improvement was noted in the hardware market last week and the trade now shows signs of continued and substantial betterment. A satisfactory amount of business was done during the week, with good inquiry that presages even a broader buying movement later. The trade is now running much in excess of a year ago, and each succeeding month seems to add a little to that total. The adjustment of the tariff has removed an unsettling factor, and this is shown in the more confident inquiry and buying of consumers. The recent advance in prices in some staple lines has also awakened a better demand, some placing orders now rather than taking a chance on higher prices later. In the local market there is good buying of builders' hardware and in the West, owing to the improved crop prospects, a better demand is also shown. The advance in prices has stimulated a little better demand for wire nails. There is a fair demand for cut nails.

The base price of wire nails at the mill for jobbers is $1.80 per keg. The base price is $1.85 at the mill for full carloads and $2.00 at the mill for less than carloads. The base price of cut nails at the mill for jobbers is $1.90 per keg. The base price is $1.95 for full carloads at the mill, and $2.00 for less than carloads at the mill.

In the Chicago market wire nails are quoted as follows: Wire nails, jobbers' car lots, $2.03; retailers' car lots, $2.08; $2.15 out of store; painted barb wire, jobbers' car lots, $2.03; retailers' car lots, $2.08, with 30 cents for galvanizing; plain wire to jobbers in car lots, $2.03, and to retailers in car lots, $2.08.

Copper slating nails are quoted at 22 cents.

TIN PLATE.

Notwithstanding that at this season of the year the tin plate market is normally quiet some heavy orders are being placed and more activity is in evidence than had been expected. There is a good demand for tin plate from the canning interests as a result of several firms having underestimated their requirements. The American Sheet & Tin Plate Co. are increasing their operations and are running at 60 per cent of serviceable capacity. Many of the independent mills are running full. Hope for further improvement in the tin plate market is had in the announcement that imports of tin plate into Canada are once more non-dutiable. Two years ago the Canadian Government imposed a penalty on the importation into the Dominion of tin plate purchased at "bargain prices." This restriction now has been withdrawn.

Prices remain firm. For 100-lb. I. C. coke plates the price is $3.45, Pittsburgh, subject to a rebate of 5 cents per box on large orders.

Quotations are as follows:

American coke, tin, I. C., from store, New York:	
Bessemer steel, 100 lbs., 14x20	$3.95@4.00
Bessemer steel, 95 lbs., 14x20	3.85@3.90
Bessemer steel, 90 lbs., 14x20	3.75@3.80
Am. charcoal terne, 8-lb. coating:	
Worcester grades, 14x20, 107 lbs	4.05@4.10
Worcester grades, 14x20, 100 lbs	3.90@3.95
Worcester grades, 20x28, 200 lbs	7.75@7.85
For prompt shipment, f. o. b. mill:	
Coke, tins, 14x20, I. C	3.60@3.65
Coke, tins, 14x20, 100 lbs	3.45@3.50
Coke, tins, 14x20, 95 lbs	3.40@3.45
Coke, tins, 14x20, 90 lbs	3.35@3.40
Charcoal terne, 20x28, I. C	7.05@7.10
Charcoal terne, 20x28, 200 lbs	6.75@6.80

Usual difference for odd sizes and weights.

SHEETS.

There is considerable activity in the sheet market and prices show a tendency to stiffen. The American Sheet & Tin Plate Co. are operating close to 80 per cent of serviceable capacity and the independents are running almost to 90 per cent. The following are Pittsburg prices: Blue annealed sheets, Nos. 10 and heavier, 1.60c; Nos. 11 and 12, 1.65c; Nos. 13 and 14, 1.70c; Nos. 15 and 16, 1.80c; box annealed sheets, Nos. 10 to 12, 1.85c; Nos. 13 and 14, 1.90c; Nos. 15 and 16, 1.95c; Nos. 17 to 21, 2c; Nos. 22 to 24, 2.05c; Nos. 25 and 26, 2.10c; No. 27, 2.15c; No. 28, 2.20c; No. 29, 2.25c; No. 30, 2.35c; galvanized sheets, Nos. 13 and 14, 2.25c; Nos. 15 and 16, 2.40c; Nos. 17 to 21, 2.50c; Nos. 22 to 24, 2.65c; Nos. 25 and 26, 2.85c; No. 27, 3.05c; No. 28, 3.25c; No. 29, 3.40c; No. 30, 3.65c; painted roofing sheets, $1.55 per square for No. 28 gauge, 2½-inch corrugation, and galvanized roofing sheets, $2.80 per square for No. 28 gauge, 2½-inch corrugation.

COPPER.

The copper market continues quiet and firm. There has been some inquiry for future positions, but very little business is being done. Lake copper is quoted at 13.40@13.50c, electrolytic at 12.90@13c, while casting is scarce at 12.90@13c. The London copper market is slightly higher for the week, £59 for spot and £59 17s 6d for futures. This is an advance for the week of 7s 6d for spot and 6s 3d for futures.

Extreme fluctuations for the year:

	Highest.	Lowest.
Lake	14.55	12.55
Electrolytic	14.55	12.12½
Casting	14.12½	12.00
London, spot	£64 2 6	£54 12 6
London, future	64 17 6	55 10 0
London, best selected	67 15 0	59 0 0

SHEET ZINC.

Sheet zinc in cask lots is quoted at 7½ to 8½c; less than cask lots 8½ to 9⅛c. The market is quiet and strong.

SPELTER.

The New York spelter market has quieted down, but is still very strong, with buyers holding off. Spot carload lots are quoted at 5.65@5.75c, with August at 5.70@5.75c, and September at 5.75@5.77½c. The

local market is firm and higher, caused by the duty of 1⅜c per lb. imposed by the new tariff bill. The Boston price is 6@6⅛c.

PIG IRON.

The pig iron market continues very firm and still has an advancing tendency. The eastern furnaces are feeling the effect of orders already booked, and are loath to take on any new business except at much higher prices than those at present prevailing. There are plenty of buyers who are willing to place orders for future delivery at the prices now being asked, but the furnaces will accept such new business only at an advance of about $2 per ton. The mills have plenty of iron in their yards, but feel that it is only a matter of a few months at the latest when prices will be much higher, and prefer to wait rather than accept business for next year at prevailing prices. Still, inquiries for the first half of 1910 are becoming daily more numerous and a steady and satisfactory business seems assured. The tariff bill is out of the way, and the iron and steel schedules have been revised downward. Trade will have to adjust itself gradually to the changed conditions, but these changes are not so radical as to seriously interfere with business as a whole, and the consensus of opinion seems to be that the trade will be very prosperous in the immediate future.

The Alabama pig iron market is still very firm, the minimum price asked being $13 a ton. The Virginia market continues unchanged at $14.25@14.50 per ton, Roanoke, for the third quarter, while for the fourth quarter 25c advance is being asked.

Iron production during July was at the rate of 25,000,000 tons per annum, coke and anthracite furnaces producing 2,088,620 tons, compared with 1,929,929 in June. For the first time since October, 1907, the monthly output equalled 2,000,000 tons. The daily melt in July was 67,375 tons, against 64,331 in June, and the number of furnaces in blast was increased from 240 to 259.

There has been a sharp movement in Pittsburg in steel-making pig iron, a total of 65,000 tons being taken, at $15.25 for basic and $16 for Bessemer. These prices have been the market for a week or more, having advanced at the close of July from $15 for basic and $15.50 for Bessemer. A further advance is predicted. The Standard Steel Company is inquiring for 100,000 tons of basic iron for delivery during the first half of next year, and expects to have its new plant at Butler, Pa., ready for operation by about Jan. 1, with an output of 5,000 to 6,000 tons weekly.

CHICAGO MARKET.

Lake Superior Charcoal	$19.50@20.00
Northern foundry No. 1	17.50@18.00
Northern foundry No. 2	17.00@17.50
Northern foundry No. 3	16.50@17.00
Southern foundry No. 1	17.85
Southern foundry No. 2	17.35
Southern foundry No. 3	16.60
Southern foundry No. 4	16.10
Southern No. 1 soft	17.85
Southern No. 2 soft	17.35
Southern gray forge	15.85
Southern mottled	15.60

PITTSBURG MARKET.

Bessemer, valley	16.00
Bessemer, Pittsburg	16.90
No. 2 foundry, Pittsburg	16.15@16.40
Gray forge, Pittsburg	15.00@15.15
Basic, valley	15.25@15.50
Basic, Pittsburg	16.15@16.40

BIRMINGHAM MARKET.

No. 1 foundry	$13.00@13.50
No. 2 foundry	12.50@13.00
No. 1 soft	13.00@13.50
No. 2 soft	12.50@13.00

Rogers, Brown & Co., Cincinnati, say in their weekly report:

"Pig iron is active and much stronger. Recent developments have all tended toward higher values and now there is better feeling in the trade than for many months past. Several records have been broken and during July production was at the rate of twenty-five million tons a year. This is the first time since October, 1907, that the monthly output has run as high as two million tons. Stocks of pig iron generally are low, and where there is a stock on hand it is being steadily decreased.

"In this territory Basic and special irons are very strong. Foundry grades holding well and the entire list of Foundry and Forge irons being stronger or advanced since our last report. Furnaces continue to withdraw from the market, or when they again come in with selling authority it is at higher figures. There are several that are still refusing to offer any iron for this or next year's delivery at the present time and are not willing to make prices when the business is put up to them. Inquiries for first quarter and first half of next year are frequent, but most producers still refuse to entertain them, feeling that higher figures will be ruling when such time becomes more or less of a spot period.

"With final adjustment of the tariff question, the excellent crop reports and the farmers' prosperity for this season, large buying of cars and railway equipment, and the demands being made upon structural steel manufacturers, there can be but one direction for the iron world to travel. It seems to have started well on this path and it is hoped a steady and continuous progressive movement will be the result.

"As an evidence of the railroads' effort to care for their part in the improvement, it is stated that during the first half of this year there were orders for about 75,000 cars placed with manufacturers.

"All of the activity and advance that is evident on the first day of August, the reduction in stocks, the increased consumption and larger movement of pig iron and coke during July, took place in the face of an increase of some twenty furnaces in blast over the number in action the first of July. It is pretty safe to assume, therefore, that consumption, which is the main thing, is proceeding at a great rate.

"Coke has at last felt the impetus and is much improved, with stronger feeling, and, while there has been no general advance, one or two interests are holding for higher figures, or when willing to quote for a longer period ahead than has been their habit recently only do so at a sharp advance. The output of coke in all districts is increasing and shipments are at a greater percent increase than manufacture, proving that melt is coming along well. There is an effort being made to put more ovens in blast and increase the production, but it is being hampered by lack of labor."

Matthew Addy & Co., Cincinnati, say in their weekly report:

"The market continues to increase in strength and there is a general feeling of satisfaction and optimism. Immense crops are about ready to be moved, railroads are hustling to get the proper equipment in shape and there is a greater activity among the mills and foundries than has been in evidence for a long time. Perhaps the greatest interest just now is centered in steel-making irons; there have been some heavy purchases during the past week and large inquiries for Bessemer and Basic are in evidence today. This refers principally to the Pittsburg and Philadelphia territories, but Chicago is coming in for a very large share.

"Furnace order books are filling up so rapidly that another advance may be looked for soon. Inquiries are confined mostly to the early part of next year, but as a rule sellers are averse to taking on business for delivery very far into the future. This is especially true in the South, where a strenuous effort is being made to confine sales strictly to the present year. None of the large furnace interests in the South have opened their books for 1910.

"More interest is being shown in Ohio Malleable and Foundry grades and a number of sales for early 1910 delivery have been booked at a marked advance over this year's quotations. Shipments are moving liberally and requisitions are coming in at a lively rate."

Current Hardware and Metal Prices.

THE AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing western hardware and metal prices corrected weekly.

METALS.

FIRST QUALITY BRIGHT PLATES.

		Per Box.
IC	14x20	$6 40
IX	14x20	7 45
IXX	14x20	8 60
IXXX	14x20	9 85
IXXXX	14x20	11 00
IC	20x28	13 70
IX	20x28	15 70
IXX	20x28	18 15
IXXX	20x28	20 55
IXXXX	20x28	22 95

COKE PLATES.

Cokes, 180 lbs.	IC	20x28	$ 8 50
Cokes, 200 lbs.	IC	20x28	9 00
Cokes, 216 lbs.	IC	20x28	9 50
Cokes, 270 lbs.	IX	20x28	11 25

PIG IRON.

North'n Fdy., No. 1	$16 65@$17 15
North'n Fdy., No. 2	16 15@ 16 65
North'n Fdy., No. 3	15 65@ 16 15
Southern Fdy., No. 1	16 35@ 16 85
Southern Fdy , No. 2	15 85@ 16 35
Southern Fdy., No. 3	15 35@ 15 85
Southern Fdy., No. 4	14 85@ 15 35
Southern No. 1 Soft	16 35@ 16 85
Southern No. 2 Soft	15 85@ 16 35
Southern Gray Forge	13 85@ 14 35
Southern Mottled	13 60@ 14 10
Lake Sup. Charcoal	19 50@ 20 00
Southern Silveries, 4% Silicon	17 60@ 18 10
Southern Silveries, 5% Silicon	18 10@ 18 60
Southern Silveries, 6% Silicon	18 60@ 19 10
Jackson Co. Silveries, 6 per cent	19 90
Jackson Co. Silveries, 8 per cent	20 90
Jackson Co. Silveries, 10 per cent	21 90
Malleable Bessemer	16 40@ 16 85
Standard Bessemer	17 00@ 17 50
Alabama Basic	16 35@ 16 85

BLACK STEEL SHEETS.

No. 12 per 100 lbs.	$2 20@$2 30
No. 14 per 100 lbs.	2 25@ 2 35
No. 16 per 100 lbs.	2 35@ 2 45
Nos. 18-20 per 100 lbs.	2 60@ 2 65
Nos. 22-24 per 100 lbs.	2 65@ 2 70
No. 26 per 100 lbs.	2 70@ 2 75
No 27 per 100 lbs.	2 75@ 2 80
No 28 per 100 lbs.	2 85@ 2 95

GALVANIZED

No. 16 per 100 lbs.	$3 05@$3 10
Nos. 12-14 per 100 lbs.	3 05@ 3 10
No. 16 per 100 lbs.	3 05@ 3 10
Nos. 18-20 per 100 lbs.	3 15@ 3 25
Nos. 22-24 per 100 lbs.	3 30@ 3 35
No. 26 per 100 lbs.	3 50@ 3 55
No. 27 per 100 lbs.	3 70@ 3 75
No. 28 per 100 lbs.	3 90@ 4 00

POLISHED SHEET STEEL.

No. 24 per 100 lbs	$4 90
No. 26 per 100 lbs.	5 00
No. 27 per 100 lbs.	5 10
No. 28 per 100 lbs.	5 20

SMOOTH STEEL.

Wood's Smooth,	No. 20	$3 05
" "	No. 22-24	3 10
" "	No. 25-26	3 15
" "	No. 27	3 20
" "	No. 28	3 30

PATENT PLANISHED SHEET IRON.

Patent Planished Sheet Iron, "A" $10.20, "B" $9 20

PATENT PLANISHED SHEET STEEL.

Keokey Planished Sheet Steel 8½c

SOLDER.

XXX Guaranteed ½ & ½	per lb. 18 c
Commercial ½ & ½	per lb. 17½c
No. 1 Plumbers	15½c

SHEET ZINC.

500 lb. Casks	case, per cwt. $7 15
300 lb. Casks	per cwt. 7 15
Sheets	per cwt. 7 15

COPPER.

Copper sheet, 100 lbs. over, base 17c

TIN PIGS AND BARS.

Banca, pigs, per lb	29 c
Straights, pigs, per lb	29 c
Straights in bars, per lb	33 c

LEAD.

American Pig	4.37½@4.40
Bar	4.37½@4.40
National (White) brands (in less than 100 lb lots), per lb	8½c

Sheet.

Full coils	per 100 lbs. $9 00
Cut coils	per 100 lbs. 9 50

HARDWARE.

ADZES.

Carpenters'.
Plumbs 40%

Coopers'.
Barton's 15%
White's 15%

Railroad
Plumbs 40%

Ship.
Plumbs 40%
White's 15%

AMMUNITION.

Caps, Percussion—per 1,000.

P. L Waterproof, 1-10s	40c
G D	35c
Musket	60c

Shells, Loaded—

Loaded with Black Powder	40%
Loaded with Smokeless Powder, medium grade	40 & 5%
Loaded with Smokeless Powder, high grade	40 & 10 & 10%
Union Metallic Cartridge Co.:	
New Club, Black Powders	40%
Nitro Club, Smokeless Powders,	40 & 5%
Arrow, Smokeless Powders	40 & 10 & 10%
Winchester:	
Smokeless Repeater Grade	40 & 5%
Smokeless Leader Grade	40&10&10%
Black Powder	40%

Gun Wads—per 1,000.
Winchester Gun Wads 15%

Powder.		Each.
DuPont's Sporting, kegs		$5 50
" "	½ kegs	2 90
" "	¼ kegs	1 60
Dupont's Sm'k'less.	50-lb. drum	22 75
" "	25-lb. kegs	11 30
" "	12½-lb. kegs.	5 80
" "	6½-lb. kegs.	2 97
"	1-lb. cans	52

Shot.

Drop shot, sizes smaller than B, 25-lb. bags, per bag	1 95
Drop shot, B and larger sizes, 25-lb. bags, per bag	2 20
Buck Shot, 25-lb. bags, per bag	2 20
Chilled Shot, 25-lb. bags, "	2 20

ANCHORS

Expansion Screw Anchors 10%

ANVILS

Trenton, 70 to 80 lbs.	9½c per lb
Trenton, 81 to 150 lbs.	9½c per lb

ASBESTOS.

Board and Paper 33⅓%

AUGURS.

Boring Machine	70%
Irwin's	40&10%
Carpenter's Nut	70%
Hollow.	
Bonney's—list $30.00	75&5%
Stearns, No. 3	36 00
Post Hole.	
Digwell, 8-inch per doz.	12 50
Iwan's Post Hole and Well	40%
Vaughan's, 4 to 9-in., per doz.	6 00
Rafting.	
Snell's	50&5%
Ship.	
Ford's, with or wi'out screw	40-10%
Snell's " " "	40-5%

AWLS.

Brad.	
No. 3 Handled per doz.	$0 40
No. 1050 Handled "	90
Shouldered, assorted, 1 to 4, per gro.	$1 20
Patent asst'd, 1 to 4 "	85
Harness.	
Common "	95
Patent "	90
Peg.	
Shouldered "	1 50
Patent "	60
Scratch.	
No 1 handled "	4 80
No. IS, socket handled per doz.	1 25
No. 7 Stanley	1 80
Sewing.	
Common per gro.	90
Patent "	90

AXES.

Boy's Handled.	
Lippincott, 3 lb. per doz.	$6 00
Marshall Falls City	5 50
Broad.	
Plumbs, West, Pat	33⅓%
" Can. Pat	35%
" Firemen's (handled) per doz	$12 00
Plumbs, Miners' (handled) "	9 00
Single Bitted (handled)	
Blood's Champion	$10 50
Blood's Dull Finished	9 00
Rough Rider	9 00
American	6 50
Perfect Premier, Forest Clipper	10 00
Duquesne	6 00
Single Bitted (without handles)	
Blood's Champion	$7 90
Blood's Dull Finish	8 00
Rough Rider	7 00
Electric Chopper	8 25
Duquesne	6 50
Crown	6 25
Double Bitted (without handles).	
Blood's Champion, 3½ to 4½ lbs. per doz	$10 00
Flint Edge " "	9 75
Perfect Premier " "	11 00

The above prices on axes of 3 to 4 lbs. are the base prices.
3½ to 4½ lbs. advance 25c
4 to 5 lbs. advance 50c.
4½ to 5½ lbs. advance 75c.

BAGS, PAPER NAIL.

Pounds	10	16	20	25
Per 1,000	$2.50	3.75	4.50	5.00

BALANCES, SPRING.

Frary's	40%
Pelouze	20%

BARS, CROW.

Pinch or Wedge Point..per cwt. $3 75

BASKETS.

Clothes.				
Small Willow	per doz.	$7 00		
Medium "	"	8 75		
Large "	"	10 50		
Galvanized Iron.	½ bu.	1 bu.	1½ bu.	
Per doz	$4 75	6 50	8 00	

BEATERS.

Carpet.	per doz.
No. 13 Tinned Spring Wire	$0 90
No. 11 Spring Wire coppered	1 20
No. 10 Preston	1 10
Egg.	Per doz.
No. 50 Imp. Dover	$0 75
No. 102 " " tinned	85
No. 150 " " hotel	1 50
No. 10 Heavy hotel tinned	2 10
No. 13 " " "	3 30
No. 15 " " "	3 60
No. 18 " " "	4 50

BELLOWS.

Blacksmiths'	65%
Hand.	
8-inch per doz.	$8 50
10-inch "	10 50
Moulders'.	
12-inch "	13 00

BELLS.

Call.	
3-inch Nickeled Rotary Bell, Bronzed base per doz.	$5 00
Cow:	
High Grade	60%
Kentucky	65&10%
Door.	Per doz.
New Departure Automatic	$6 00
Rotary.	
3 -in. Old Copper Bell	4 00
3 -in. Old Copper Bell, fancy	6 00
3 -in. Nickeled Steel Bell	4 50
3½-in. Nickeled Steel Bell	5 00
Hand.	
Hand Bells, polished	40&10%
White Metal	40%
Nickel Plated	30%
Swiss	40&33⅓%
Silver Chime	33⅓%
Miscellaneous.	
Church and School, steel alloy	50%

Farm, lbs.	40	50	75	100
Each	$1.50	2.25	3.38	4.50

BEVELS, TEE

Stanley's, rosewood handle, new list	25%
Stanley's iron handle	25%

BINDING, OILCLOTH.

Zinc	80%
Brass	75%
Brass plated	75&5%

BITS.

Auger.	
Extra Double Spur	70&10%
Ford's Car and Machine	40&10%
Ford's Ship	40&10%
Irwin	50%
Russell Jenning's	25&10%
Clark's Expansive	60%
Steer's " Small list, $22.00	25%
" " Large " $26.00	25%
Irwin Car	50%
Ford's Ship Auger pattern Car	40&10%
Center	25%
Countersink.	
No. 18 Wheeler's per doz.	$1 50
No. 20 " "	2 25
American Snail head	1 00
" Rose "	1 00
" Flat	80
Mayhew's Flat	1 10
" Snail	1 25
Dowell	
Russell Jennings	25&10%
Gimlet.	
Standard Double Cut	60%
German Pattern per doz.	$0 60
German "	65
Gouge "	80
Spoon "	1 00
Countersink "	1 20
Reamer.	
Jenning's Square "	2 50
Standard Square "	1 20
German Octagon "	75
Screw Driver.	
No. 7 Common "	80
No. 1 Triumph "	1 25

BLACKING, STOVE. (See Polish).

BLADES, SAW

Butchers'.
Standard, ¾ & 1¼-in. 40%
Clock Spring 40%
Star 15%
Coil ..... each, $1 50

Hack.
Disston's ..... 25&5%
Flexible ..... 33⅓&5%
Star ..... 20&5%

Wood.
Jackson's ..... per doz. $2 25
Disston's—No. 6, 16, 26 & 045.. 4 25
Triumph 3 50
Forest Clipper 3 00

BLOCKS.

Snatch.
Wooden ..... 60&10%
Steel 50%

Tackle.
Iron Strapped ..... 70&10%
Com. Steel 60%

BOARDS. (New List)

Stove ..... 50&10%

Wash.
Globe, single ..... per doz. $2 50
Globe, double ..... " 3 35
Memphis Globe ..... " 2 75
Crystal Glass ..... " 4 00
Brass King ..... " 3 75
Nickel Plate ..... " 4 15

BOBS, PLUMB.

Carpenters'.
No. 2, iron ..... per doz. $0 65
No. 00, " ..... " 1 30
No. 0, " ..... " 2 20
No. 3, lead ..... " 2 75
No. 4, " ..... " 3 40
No. 113, brass plated.. " 1 10
No. N30, nickel plat'd. " 1 30
No. N31, " " " 1 85

BOLTS.

Carriage, Machine, etc.
Carriage, ¼x6 and sizes smaller and shorter ..... 70&10%
Carriage, sizes larger and longer than ¼x6 ..... 60&10%
Machine, ¼x4 add sizes smaller and shorter ..... 70&10%
Machine, sizes larger and longer than ¼x4 ..... 60&5%
Elevator ..... 50-10&5%
Plow ..... 60&10%
Stove ..... 80&10%
Tire 75%
Wagon Box Strap 70%

Mortis, Door.
Gem, iron 60%
Gem, bronze plated 20%

Barrel.
Cast 60%
Wrought ..... 75&10%
Wrought, bronzed 60%

Flush.
Wrought ..... 50&10%

Spring.
Wrought ..... 75&10%
Wrought, heavy ..... 78&10%

Square.
Cast ..... 50&10%
Wrought ..... 75&10%

BORERS.

Angular.
Miller's Falls ..... per dos. $13 00

Bung.
Doz.
Enterprise Mfg. Co.'s No 1.... 20%
" " " No 2.... 20%

BOXES

Mail, No. 1 2 10
Per doz. $3.50 5.00 17.50

Miter.
New Langdon ..... 15&5%
Stanley's 30%
Seavey's ..... each, $1 50

BRACES.

Barber's ..... 50&10%
Fray's Genuine Spofford's 60%
" Nos. 66 to 146 ..... 50%
" No. 0108 ..... $3 50
" No. 08 ..... 2 75
" No. 010 ..... 3 00

BRACKETS.

Hay-Rack.
Wenselmann's No. 1, per doz. $9 00
" No. 2, " 9 00

Shelf.
Cast Iron, bronzed ..... 50-10&5%
Clover Wrought Steel ..... 70&10%
Clover Folding 70%

BROILERS.

Wire 70%
No. Crown, Self-basting, 80dos .. $2 50

BUCKETS.

Pump, Rubber.
Wychoff ..... per gro. $4 75
Cooper ..... " 4 75
Champion ..... " 7 50
Victor ..... " 9 25
Star ..... " 5 00
IXL ..... " 6 75

Well.
Galv'd Qts 10 12 14
Per doz. $2.90 $3.25 $3.40
Wooden, top ear, plain, per doz. 4 00
" " swivel, " 5 10

BUCKS, SAW.

Folding ..... per doz. $2 10

BURRS, RIVETING.

Copper Burrs only 20%
Tinners' Iron Burrs only ..... 65&5%

BUTTS.

Cast Iron ..... 70&5%
Wrought Brass (New List)... 40&10%
Wrought Steel, Bright. ..... 80&10%
Wrought Steel, Japanned.
Nos. 731 and - ..... 70&10&10%

CALIPERS.

Double 35%
Inside and Outside 35%
Wing 30%

CALKS.

Logger's Boot.
(Lufkin R. Co.'s), per M..... $3 75

Toe.
Shoenberger ..... per lb 5 c
Bessemer ..... " 4½c
American ..... " 7 c
Swedes ..... " 8½c

CANS.

Cheese Factory.
Ontario Pattern.
Gallons 20 30 40
Each $4.25 $5.00 $6.25

Milk.
Holstein.
Nos. 300 301 302
Gals. 5 8 10
Per doz. $17.50 $22.00 $25.00

Gem Pattern.
Nos. 400 401 402
Gals. 5 8 10
Per doz. $17.50 $21.50 $23.50

Omega Pattern.
Nos. ..... R. 2 R. 3
Gals. 8 10
Per dozen $23.50 $26.50

Jersey Pattern.
Nos. 80 81
Gals. 8 10
Per doz. $23.00 $27.00

CAN OPENERS.

See Openers.

CAPS, GUN.

See Ammunition.

CARPET STRETCHERS.

See Stretchers.

CARRIERS.

Hay.
Diamond, Regular ..... each, $3 85
Diamond, Sling ..... " 6 50
Myers' Imperial ..... " 3 85
Myers' Clover Leaf ..... " 4 00

CARTRIDGES.

See Ammunition.

CASTERS.

Standard—Ball Bearing ..... 50&10%
Bed ..... 60&5%
Common Plate.
Brass Wheel ..... 60&10%
Iron and porcelain wheels, new list ..... 60&5%
Philadelphia Plate, new list..... 60%
Martin's 60%
Payson's ..... 75&10%

CATCHERS, GRASS.

Carroll's, No. C ..... per doz. $4 25
Wildermuth's,
Nos. 1 2 3
Per doz. $5.60 $5.75 $6.25
Nos. 4 5 6
Per doz. $6.75 $9.50 $10.00

CHAIN AND CHAINS.

Breast Chains.
Doubleslack ..... doz. pairs, $5 75
With Covert Snaps. " 5 00
With Slide ..... " 3 25
Without Slide ..... " 2 85

Bright Ox Chains.
¼-in. $7.25; ⅜-in. $5.45 per 100 lbs.

Cable Coil Chain.
Inch ..... ⅜ ½ ⅝ ¾
Per 100 lbs. $10.80 $8.00 $7.00 $6.20
Inch ..... ⅞ 1 1¼ 1½
Per 100 lbs. $6.00 $5.90 $5.75 $5.65
Inch ..... ¾ 1 1¼
Per 100 lbs. $5.55 $5.55 $5.65

Cable Log Chain.
Advance 25c per 100 lb. on Cable Coil.

Cow Tie Chains.
American, 2 toggle ..... 50&5%
" toggle and snap... 50&5%
" open and closed ring ..... 50&5%

Halter Chains.
American, new list 33⅓%
German 60%
Niagara, new list 40%
Brown's, " 40%

Picture Chains.
Light Brass, 3 ft. ..... per doz. $0 75
Heavy Brass, 3 ft .... " 1 00

Pump Chain
Galvanized, per 100 lbs. $5 50

Safety Chain.
Brass 60%

Special Steel Loading Chain.
Inch ..... ½ ⅝ ¾
Per 100 lbs. $16.00 $13.50 $12.50

Stretcher Chains.
⅜-in. $8.50; ½-in. $7.75 per 100 lbs.

Tie-Out Chains.
Brown's ..... 70&5%

Trace Chains.
Western Standard.
6—6-2 ..... per pair 30c
6—8-2 ..... " 34c
6—8-3 ..... " 33c
6—10-2 ..... " 38c
7 — 8-2 ..... " 38c
7 —10-2 ..... " 42c
7 —10-1 ..... " 48c
7 —10-0 ..... " 60c
Add 2c per pair for Hooks.
Add 2c " for Twist Link.

Wagon Stay Chains.
Inch ..... ½ ⅝ ¾
Per 100 lbs. $6.50 $6.00 $5.50

CHALK, CARPENTERS'.

Blue ..... per gro. 75c
Red ..... " 65c
White ..... " 55c
Common White School Crayon ..... " 10c

CHARCOAL.

In bags ..... per bag 90c

CHECKS, DOOR.

Blount 33⅓%
Sargent's 33⅓%

CHIMNEY TOPS.

Iwan's Volcano 50%

CHISELS.

Box.
Inches 10 12 14
Round per doz. $2.10 $2.25 $2.75
Flat " ... 2.85 3.60 4.20

Cold.
Good quality, ¾ in. and larger ..... per lb. .13c
Smaller size per doz. .....

Socket, Framing and Firmer.
Clover ..... 75&10%

Tanged, Firmer.
With handles ..... 30&5%

Choppers, See *Cutters, Meat.*

CHUCKS, DRILL.

Goodell's, for Goodell's Screw Drivers ..... per doz. $6 25
Yankee, for Yankee Screw Drivers 5 00

CHURNS.

Anti-Bent Wood,
Gal. 5 7 10
Each $3.90 $4.60 $4.85
Belle, Barrel ..... 65&7½%
Common Dash, Gal. 4 5 6
Per doz. $7.75 $8.50 $10.50
Union, Gal. 5 7 10
Each $3.65 $3.90 $4.75

CLAMPS.

Adjustable.
Martin's 30%

Carpenters'.
Steel Bar 25%

Hose.
Sherman's, brass, ¾-in., per doz.. 42c
Double brass, ¾-in., " 90c

Saw Filers.
Disston's list, $30.00 ..... 30%
Stearns', No. 0, $3.50; No. 1, $11.50; No. 3, $5.00 dos.
Wentworth's, No. 1, $8.00; No. 3 $8.10.

CLAWS, TACK.

Cast, wood hdle ..... per dos. 45@60c
Forged steel, wood hdle " $0.80
Solid steel ..... " 1 00
Giant ..... " 50

CLEANERS.

Drain.
Iwan's Adjustable 55%
Iwan's Stationary ..... 40&5%

Pot.
Wire ..... per dos. $0 75

Side-Walk.
Steel ..... per dos. $3 25
XLCR ..... 65&5%

CLEAVERS

Family.
Griffin, Inch 6 7 8
Per dos. $5.50 $6.75 $6.25
Royal ..... per dos. 2 25

Butchers.
Plumbs 25%

CLEVISES

Malleable ..... 5½c lb.

CLIPPERS.

Bolt ..... $1.00@4.75

CLIPS.

Axle ..... 65&5%

Damper.
Standard ..... per dos. 65c
Troy ..... " 38c

Hame ..... " 17

CLOTH

Emery.
Star 50%
B. & A. 50%

Hardware Wire—full rolls (100 ft.)
2 to 3 incl., Galv.—in full roll... 2 75
4 and 5 ..... " .. 3 00
6 ..... " .. 3 25
7 and 8 ..... " .. 3 75

Screen Wire.
12 mesh, painted, per 100 sq. ft.. 1 35

COCKS AND FAUCETS.

Compression Plain Bibbs... 60, 10&5%
Lever Bibb Cocks ..... 60, 10&5%
Compression Hose Bibbs .. 50—10&5%

Telegraph Faucets (new list)..50—5%
Racking Cocks (new list)... 60, 10&5%
Compression Lock C'ks (new list). 70%
Andrew's Brass Faucets 70%
Angle Plug Faucets, per dos.... $0 85
Milk Can Faucets, per dos.. $2.60-4.20
Petroleum Faucets ..... 75&5%

COLLARS, STOVE PIPE.

Inches 5 6 7
Plain Tin.. per gro. $1.90 $2.40 $3.50
Japanned Tin " 3.00 3.00 4.25
Lacquered Brass" 3.00 5.50 4.25

COMBS, CURRY.

Nos... 000 11 15 30 80 108
Per Doz.. $.37 .60 1.00 .90 1.15 .80
Nos... 209 220 390 522 620 1400
Per Doz. $1.05 .85 1.35 1.20 .75 1.40

COMPASSES.

Carpenters' 60%
Pencil—Faber's ..... per doz. $1.00

COPPER—See Metals.

COPPERS.

Soldering.
1 lb. ..... per lb 30c
1½ lb. ..... 31c 2 lb. ... " 29c
3 lb and larger ..... " 28c

CORD.

Picture
White Wire (new list) ..... 85&10%

Sash.
Monarch Braided Flax... per lb
Silver Lake, white, 7-32 in. "
Silver Lake, white, 8-32 in. "
Keystone ..... 8-32 in. " 29c

CORKSCREWS.

Humason & Beckley 33⅓%
Walker's 33⅓%
Williamson's Regular ..... 40&10%
Williamson's Forged Worm 50%

COTTERS, SPRING.

All sizes—new list ..... 90&30%

COUPLINGS, HOSE.

Brass ..... per doz. $1 00
Brass Plated ..... " 85

COVERS, WAGON—See Tents.

CRADLES, GRAIN.

Morgan's Grapevine.... per dos. $22 75

CRAYONS—See Chalk.

CROW BARS.

Inch or Wedge Point.....per lb 3½c

CUTTERS.

Glass.
Red Devil.....45%
Smith & Hemenway Co.....50%
Woodward.....40%
Meat.
Enterprise, Nos. 5, 10, 12, 22, 32 and 42.....25%
No. 202, list, $1.50 ea.....40&7½%
Pipe.
Stanwoods. No.... 1 2 3
Each.....$0.85 $1.50 $4.00
Slaw and Crout.
3-knife Crout.....per doz. $9 75
1-knife Slaw..... " 1 65
2-knife Slaw..... " 2 25
Washer..... " 75

DAMPERS, STOVE PIPE.

Jewel.....50&10%
American.....50%

DIES AND STOCKS.

Discount.....40%
King's, Little Giant.....33⅓%

DIGGERS.

Post Hole.
Acme.....per doz. $9 25
Atlas..... " 9 00
Eureka..... " 7 50
Hercules..... " 10 25
Iwan's Split Handle.. " 7 50
Iwan's Perfection.... " 9 00
Iwan's Hercules pattern " 10 00
Ryan's..... " 17 00
See also Augers—Post Hole.
Dividers, Wing.....65&10%

DOOR CHECKS—See Door.

DOORS, SCREEN.

⅜ in. 4-panel, painted...per doz. $7 93
1⅛ in. 4-panel, painted... " 9 50
1⅛ in. 3-panel, natural pine, fancy..... " 12 40

DOOR HANGERS—See Hangers.

DRILLS.

Bit Stock.....60&10%
Blacksmith's Twist.....60%
Breast.
Fray's No. 9.....each, $1 75
Millers Falls No. 12..... " 2 10
Hand.
Goodell's Automatic.
Nos..... 01 03 3 20
Per doz.. $7.75 $12 50 $12.50 $11.00
Goodell's Single Gear.per doz. 15 75
Millers'Falls " " " 12 75
" " Double " " 15 25
Reciprocating.
Goodell's.....per doz. 16 50
Bit Stock.
Standard List..60&5%@60%@10

DRIVERS, SCREW.

Standard.....65&10%
Lock Ferrule.....60%
Champion.....40&10%
Champion Pattern.....70%
Clark's Interchangeable.....30%
Edison.....60%
Reed's Lightning.....45&5%
Goodell's Spiral.....50, 10, 5&2½%
Yankee Ratchet.....50%
" " Spiral.....50&10%
Smith & Hemenway Co.....40&5%

EAVES TROUGH, GALVANIZED.

Terms, 2% for cash. Factory shipments generally delivered.

See also conductor pipe and elbows.

EGG BEATERS—See Beaters.

ELBOWS.

Adjustable Stove.
Inches..... 5 6 7
Smooth, per doz...$0.75 $0.85 $1.20
Plan'd, " 1.80 2.00 2.65
Corrugated Conductor.
Discount.....75&10%
Corrugated Stove.
Inches..... 5 6 7
Smooth, per doz..$0.85 $1.00 $1.50
Pol'd, " .. 1.40 1.65 2.25
Plan'd, " .. 2.15 2.65 3.40
Four-Piece Stove.
Inches..... 5 6 7
Smooth, per doz..$0.60 $0.35 $0.95
Planished, " .. 1.40 1.70 2.30

EMERY CLOTH—See Cloth.

EMERY TURKISH.

Size.....5-lb. pkgs, ½ kegs, kegs.
No 60 to 150, per lb.. 6c 4c 4c
Flour..... " ... 5c 3c 3c

ENAMEL, IRON.

A-B Iron Enamel, 3 doz. case, ...per gro., 15 00
Peerless..... 1 25

EXTRACTORS, PIG.

See Forceps, Pig

EYES.

Bright Wire Screw—See Goods, B. W.
Drifting Pick.....60, 10&5%
Hooks and—
Brass.....50&10%
Iron.....70%

FASTENERS, STORM SASH.

Schroeder's.....per doz. $0.85
Sensible..... " 1 15

FAUCETS—See Cocks.

FILES AND RASPS.

Delta.....70&10%

FLUE STOPPERS—See Stoppers.

FORCEPS, PIG.

Superior.....per doz. $4 75
Whisson's Imp..... " 5 25

FORKS.

Barley.
Steel New List.....65&10%
Wood, 4-tines, per doz.....$5 00
Coal, Coke, Cottonseed.....30%
Hay.
2-tine.....60%
3 " .....60&5%
4 " .....60&10%
Digging.....65&5%
Scoop.....30%
Header.
3-tine.....60&5%
4 " .....60&5%
Manure.
4-tine.....60%
Ore.....40%
Spading.

FRAMES.

Hack Saw.
Union.....per doz. $5 75
Jenning's adj..... " 7 50
Cast..... " 2 50

FREEZERS, ICE CREAM.

Arctic.
Qts..... 1 2 3 4 6
Each...$1.10 1.30 1.50 1.80 2.30
Qts..... 8 10 12 15
Each.....$2.95 3.80 4.50 5.20
Jack Frost.
Qts..... 2 3 4 6 8 10
Price .$1.60 1.90 2.20 2.80 3.60 4.95

GAUGES.

Butt and Rabbet.
Cream Pail.
Fairmont.....per doz. $3 75
Marking, Mortise, etc.....
.....50&10%
Saw.
Wire.
Disston's.....35%

GIMLETS.

Discount.....35@40%

GLASS, WINDOW.

Single.....90&20%
Double.....90&25%

GLASSES, LEVEL.

GLUE.

Bulk.
B Amber.....per lb. 12
A White..... " 15
H. S. Amber..... " 16½c
Liquid.
Army & Navy.....40%
Le Page's—
List "A".....37½%
List "B".....33⅓%
List "C".....25%

GOODS.

Bright Wire.....90%

GREASE, AXLE.

Wood Boxes.
Diamond.....per gro. $5 50
Frazer's..... " 9 50
Hub Lightning..... " 5 25
Paragon..... " 6 75
Wood Pails.
Frazer's, 15 lb. 80c; 25 lb. $1.30 each.
Hub Lightning, 15 lb. 55c; 25 lb. 70c each.
Tin Cans.
Chameliene Graphite.
1 lb. per gross.....$9 50
3 lb. per gross.....25 00
5 lb. per gross.....37 00

GRIDDLES.

Soapstone.....33⅓%

GRINDSTONES.

Family.
Inches..... 6 8 10
Per doz.....$7.25 9.75 12.00
Loose.
Per ton.....$20 00@$21 00
Mounted.
Ball Bearing..... 1 2 3
Each.....$3.15 3.00 2.85
Common Bearing 1 2 3
Each.....$3.00 2.80 2.65

GUN WADS
(See Ammunition.)

HAFTS, AWL.

Brad.
Common.....per doz. $0 19
Peg.
Common..... " 22
Patent, plain top..... " 47
Patent, leather top... " 82
Sewing.
Common..... " 22
Patent..... " 52

HALTERS.

Jute Rope.....per doz. $1 10
Sisal Rope..... " 1 85
Web..... " 2 00
Leather, rope tie..... " 8 50
Leather, leather tie..... " 11 50

HAMMERS, HANDLED.

Blacksmiths' Hand.
Plumbs.....60&5%
Engineers'.
Plumbs.....60&5%
Farriers'.
Plumbs.....40&10%
Machinists'.
Plumbs.....60&5%
Nail.
Plumbs.....40&7½%
Quaker City.....per doz. $3 50
Cast..... " 1 15
Maydole's.....30&5%
Riveting.
Plumbs.....40&12½%
Shoe.
Cast.....per doz. $0 90
Tack.
All Iron.....per doz. $0 35
Pol'd Iron, Hickory hdl. " 50
Mall. Iron, Inlaid..... " 1 55
Magnetic..... 1 2 3
Per doz.....$0.70 .80 1.00
Magazine.....per doz. 4 75

HAMMERS, HEAVY.

Heavy Hammers and Sledges.
Under 5 lbs.....80&5%
5 lbs. and over.....80&10%
Masons'.
Single and Double Face.....50&5%

HANDLES.

Auger.
Common Assorted....per doz. $0 50
Pratt's Adjustable, Nos. 1 & 2, per doz..... 4 50
Ives' Adjustable,....per set, 1 35
Axe.....40%
Chisel.
Hickory, Tanged Firmer, Assorted, 33c; Large, 38c per doz.
Hickory, Socket Firmer, Assorted, 27c; Large, 30c per doz.
Applewood, Tanged, Firmer, Assorted, 20c; Large, 18c per doz.
Applewood, Socket, Firmer, Assorted .....per doz $0 24
Coal Pick.....40%
Drifting Pick.....40%
File, assorted, 13c; Large, 16c per doz.
Hammer.
Adze Eye..per doz. $0 40
Blacksmiths'..... " 40c@70c
Machinists'..... " 45c@70c
Hatchet..... " 40
Hay and Manure Fork.....30%
Hoe and Rake.....30%
Plain.....per doz. $0 75
Varnished..... " 80
Screw Driver.
Assorted..... " 37
Large..... " 48
Shovel and Spade.....33⅓%

HANGERS.

Barn Door.
U. S. Rolled Bearing.....60&10%
Matchless.....50&10%
Storm King.....60%
World's Best.....50%
Wagner's Adjustable.....70&10%
Warehouse Big Twin.....25%
Conductor P.
Griffin.....70&10%
Iwan's Perfection.....50%
Eave Trough.
Baker's.....per gro. $2 35
Imperial.....20%
Wire.....33⅓%
Parlor Door.
Acme.....per set, $3 75
Ives' Improved..... " 2 60
Lane's Standard..... " 3 50
Lane's New Model..... " 3 10
Le Roy Noiseless..... " 4 00
Richards'.....40-10&5%

HASPS.

Hinge, Wrought.....40%
With Staples—See Staples.

HATCHETS.

Crescent.....50&10%
Cast Claw.....per doz. $1 10@1 35
Cast Shingling..... " 1 25
Germantown.....30%

HAY KNIVES.

See Knives.

HAY RACK BRACKETS.

Wensleman's No. 1.....per doz. $9 00
Wensleman's No. 2..... " 9 00

HINGES.

Blind.
Clark's Gravity ... per doz. sets, 95c
Parker's.....65%
Shepherd's Noiseless, for Wood Casing.....per doz $1 95
Gate.
Clark's..... 1 2 3
Hgs & Ltch.. doz. $2.50 3.25 4.25
Hinges only... " 2.00 2.50
Latches only.. " .90 .90
Knuckle.....per doz prs. $6 00
Leed's..... " sets 6 75
Superior..... " prs. 9 50
Spring.
Banner.....50%
Chicago.....25&5%
Columbia Dbl. Acting....40&10&5%
Gem.....25%
Ideal Detachable.....per gro. $11
Matchless.....40%
New Idea.....per gro. $8 00
Oxford.....20%
Wrought Iron.
New Lists .....
Light Strap Hinges.....60%
Heavy Strap Hinges.....60, 10&10%
Light T Hinges.....55%
Heavy T Hinges.....45%
Extra Heavy T Hinges.....60%
Screw Hook and Strap.
6 to 12 in.....per 100 lbs. $4 50
14 to 20 in..... " " 4 25
22 to 36 in..... " " 4 00
Screw Hook and Eye.
½ in.....per 100 lbs. $6 75
⅝ in..... " " 7 75
¾ in..... " " 9 75

HOES.

Garden .....70&10%
Grub.
Extra.....70%
Hazel.....per doz. $5 00
Ladies' and Boys'.....75%
Mortar.....75&10%
Planter's Eye.....62½%
Weed.....75&15%

HOLLOW WARE—See Ware.

HOOKS.

And Eyes.
Brass.....60%
Iron.....70%
Awning.....per gro. 80&10%
Belt.
Brown's.....70&5%
Jones'.....65&5%
Bench.
See Stops, Ben

Box.
Inch..... 5 7 10 12
Per doz.....$1.90 2.10 2.25 2.65
Humason & Beckley's..per doz. $2 50
(See Goods, Bright Wire.)
Bush.
Common Axe Handle.per doz. $7 00
Chain.
Inch..... ⅛&⅜ ½ ⅝ ¾
Per 100..$7.60-3.10 9.75 11.50 12.60
Clothes Lines.
Japanned.....per doz 22c@24c
Galvanized..... " 40c
Coat and Hat
Cast Iron .... per gro. 72c@$1 50
Gem Wire.....70%
Conductor.
Malleable.....35%
Wrought.....20%
Corn.
Common, rivetted, painted red.....per doz. $2 25
Little Giant..... " 3 25
Gate.
See Goods, Bright Wire.
Grass.
Common. Nos..... 2 3 1
Per doz.....$1.50 1.00 1.70
German.....per dos. 1 75
Gypsy..... " 2 50
Hammock.
With plate.....per doz. 50
With screw..... " 45
Lambrequin, or Drapery, per gro. 21c
Picture.....50%@50&10%
Potato and Manure.....70&12½%
Screw.
Brass.....80&5%
(See Goods, Bright Wire.)
Seat Spring.....per lb. 5½c

HOOPS, TUB.

Elastic ... per case of 2 doz.... $1 50

HOSE, GARDEN.

	Coupled, per ft.
Velvet, 3 ply-¾" guar. press	7½c
Eclipse, " " "	8½c
Diamond " " "	10c
Jeanette " " "	13c
Pennsylv'a " " "	16c

COTTON COV. RUBBER HOSE.

High Grade-¾"-guar. press,	400 lbs.	11½
Special " " "	300 "	9½c
Leader " " "	100 "	7½c

HUSKERS.

Boss.
Nos..... B BB E 200
Per doz.....$2.00 2.00 1.75 .80
Nos..... L PP P K
Per gro.....$5.40 6.00 6.00 10.50
Nos..... 2000 3000 O
Per gro.....$3.50 9.00 24.50
Nos..... 00 50 64 68
Per doz.....$2.15 2.15 .85 1.45
Brinkerhoff's.
Per gro.....$14 40

IRON.

See Metals.—First column.

IRONS.

Curling.
C.....per doz. $0 40
B..... " 50
A..... " 58
Princess..... " 70
Thelma..... " 1 25
Pinking..... " 70
Plane.
Wood Bench.....20&5%
Sad.
Charcoal.....per doz.$11 00
Common, polished, per 100 lb. 3 75
No. 70 Asbestos.....$1 20 net
No. 100 " ..... 1 30 net
Common, nickel plated, 5 25
Chinese Polishing.....per doz. 7 40
Laundry, No. 1..... " 5 75
Laundry, No. 2..... " 6 25
Mrs. Pott's
No. 50 J, Enterprise, per set 93
No. 55 J, " " 90
No. 50 T, " " 1 00
No. 55 T, " " 96
Tailors' Sad.....per lb. 5½
Tailors' Geese..... " 5½
Tuyere.
Single Duck Nest....per doz $5 25
Double Duck Nest... " 6 25
Sutton.....each.... 2 00

JACKS.

Locomotive.....70%
Wagon.
Miller.....50%
Oliver,
Nos. 2..... 0 00
Each.....$0.60 $0.80

Standard.
Nos..... 1 2
Each.....$0.60 1.00
Wilcox.
Nos..... 1 2 3
Each.....$0.85 1.20 2.90

KETTLES.

Brass.....15%
Cauldron.....40&5%
Copper.....per lb., 27c
Maslin.....65%
Sugar.....50%

KNIVES.

Beet Topping.
Clyde, 9-in. Scimiter Blade, doz.$3 85
California..... " 3 40
Cooper's Hoop.....15%
Corn.
Clipper.....per doz. $1 75
Disston's..... " 2 75
Earle's..... " 3 00
Woodford..... " 2 25
Drawing.
Standard.....70%
Adjustable.....15%
Barton's Carpenters'.....10%
Folding Handle.....35&5%
Hay.
American, Sickle Edge...doz. $10 50
Canton, Sickle Edge..... " 8 25
Heath's..... " 6 00
Iwan's, Sickle Edge..... " 9 50
Iwan's, Impv'd Serrated. " 10 00
Lightn'g, Holt's Genuine. " 6 50
Lightning Pattern..... " 6 00
Wadsworth's Sp'r Point.. " 8 50
Hedge.
Challenge.....per doz. $6 00
Disston's..... " 3 75
Mincing.
Common, Single..... " 40
Common, Double..... " 50
Streeter, 4-Blade..... " 1 30
Streeter, 6-Blade..... " 2 00
Putty.
Common.....per doz. $0 60@1 00
Lander'r..... " 1 40@1 75
Scraping.
Beech Handle..... 75@1 00
Lander's..... 5 25@6 00

KNOBS.

Door.
Mineral.....per doz. $0 80
Porcelain..... " 90
Jet..... " 90

LADDERS.

Common Long.
Per ft.....9c@14c
Extension.
Per ft.....14c
Step.
Common, per ft.....7½c
Common, with Shelf, add 10c.
Keystone.....15c
Triumph, per ft.....20c

LANTERNS.

Bull's Eye Police.
3 -in. Flash Light....per doz. $6 00
2½-in. Regular..... " 4 80
3 -in. Regular..... " 5 50
Tubular.
Dietz & Hanes'.....net prices.

LEADERS, CATTLE.

Nos..... 1 2 3
Per doz..... $0 55 .70 2.75

LEATHER, LACE.

Cut.....33⅓%
Sides.
Ex. Quality.....per sq. ft., 27

LEATHERS, PUMP.

Valve and Plunger.....10%

LIFTERS.

Stove Cover.
Coppered.....per gro. 1 75@3 65
Ideal..... " 5 50
Alaska, Coppered " 4 00
Alaska, Nickeled. " 5 00
Transom.
Payson's.....80%

LINES.

Chalk.
Twisted in 20-ft. hanks.
Nos.... 4 6 7 8 9
Gross...$1.80 2 00 2 25 2 50 3 00
Twisted in 50-ft. balls.
Nos..... 1 2 3 4
Per doz.....25c 30c 35c 41c
Braided in 20-ft. hanks.
Nos..... 0 1 2 3
Per doz.....22c 25c 31c 35c
Mansons', in 100-ft. hanks...doz. 80c
Clothes.
60-ft. Jute.....per doz. $0 95
72-ft. Jute..... " 1 15
60-ft. Sisal..... " 1 40
72-ft. Sisal..... " 2 15
50-ft. Cotton..... " 1 15
50-ft. Braided Cotton. " 25

LINING, STOVE.

In Bricks.....per crate, 42c

MACHINES.

		Without Augers	With Augers
Boring.			
Angular.....per doz.		3 00	4 40
Upright..... "		2 00	4 00
Leather Riveting.			
Chicago, Pomeroy....per doz.		$0 00	
Excelsior..... "		2 00	
Handy..... "		2 00	
Little Giant..... "		3 00	
Pony, Pomeroy..... "		7 20	
Washing.			
Winner.....per doz.		54 00	
Keystone..... "		54 00	
U. S. Steel..... "		60 00	
Advance, f.o.b. Chicago "		24 50	

MAIL BOXES.

See Boxes.

MALLETS.

Carpenters'.
Fibre Head, Small....per doz. $5 00
" " Medium. " 5 75
" " Large... " 7 00
Round Hickory..... " 2 25
" Lignumvitæ... " 4 00
Square Hickory..... " 2 25
" Lignumvitæ... " 4 50
Tinners'.
Applewood..... " 1 70
Hickory..... " 1.00@1 50
Hickory Sheet Iron... " 1 50

MATS.

Door
National Rigid.....50, 10&5%
Acme Steel Flexible.....33⅓%
Stove.
No. 2.....per gro. $3 25
No. 1..... " 3 50
No. 1 Asbestos Toasters, or wire-covered Stove Mats, with handle.....per doz. 1 10
No. 2 Asbestos Toasters, with ring.....per doz. 60

MATTOCKS.

Plumbs.....65&10%
Extra.....60%

MAULS.

Iron, lbs.....	10	13	16	18
Per doz....	$4.00	4.50	5.25	5.60
Wood face, lbs.....	10	12	14	
Per doz.....	$5.00	5.50	6.00	

Wood Choppers'.
Lake Super'r & Oregon Pat. 75&10%

MEASURES.

	½ pk.	1 pk.	bu.
Galvanized, per doz.	$2.25	3.00	3.85
Japanned.. "	1.75	2.45	3.15

MICA.

First Quality.....40&5%
Second Quality.....50&5%

MILLS, COFFEE.

Enterprise.....25%
Parker.....50&5%
Arcade.....40-12½&2½%

MITRE BOXES.

See Boxes.

MOPS.

Erie.....per doz. $3 15
Handled Cotton.
Pounds..... ½ 1 1½ 2
Per dozen....$2.00 2.35 2.65 3.25

MOWERS, LAWN.

Gladiator—B. B.
Inches..... 16 18 20
Each..... 6.50 7.25 8.00
King Universal—B. B.
Each..... 5.25 5.75 6.00
Inches..... 14 16 18
Big Giant..... 3.50 3.90 4.25
Little Giant..... 2.50 2.65 2.75

NAILS.

Cut Steel.....rates, $2 50
Cut Iron..... 2 00
Wire.
Small Lots..... $2 28
Carload Lots..... 2 18
Cement Coated..... 2 30
Horse Shoe.
Ausable.....55&5%
Capewell.....15%
Perfect.....55&5%
Putnam.....20&5%
Star.....35&5%
Clover Leaf.....per lb., net, 10½c
Picture.
Brass Heads.....25%
Brads.....65%
Furniture.....15%

NAIL PULLERS.

See Pullers.

NAIL SETS.

See Sets.

NETTING, POULTRY.

Galvanized beforeweaving .80,10&2½%
Galvanized after weaving.....80&7½%
Cut Pieces.....65&5%

NIPPERS.

End Cutting.
Stubb's Pattern. Inches 5½ 6
Per dozen..... $4.00 4.25
End and Diagonal Cutting.
Swedish Side.....75%
Utica Drop Forge & Tool Co....60%
Hoof.
Heller's.....40&10%
V. & B.....55&5%

NOZZLES.

Hose.
Genuine Gem.....per dos. $3 90
Magic..... " 3 90
Mystic..... " 3 00

NUTS, HOT PRESSED.

Square Blank.

In	⅜	½	⅝	¾	⅞	1
lb	9½c	8c	6½c	6½c	5½c	5c	4½c

Square Tapped.

In.	⅜	½	⅝	¾	⅞	1
lb.	12½c	10½c	8c	7½c	6½c	6½c	6c

For 5-lb. boxes add ½c per lb. to above prices.

OILERS.

Chase Pattern.
Brass and Copper.....60%
Zinc.....60%
Engineers'.
Cannon.....55%
Tin.....per doz. $2 00@$2 25
Machine.
Common.....per doz. $0 58
Copper Plated Steel... " 1 00
Malleable Iron.....60, 10&5%
Japanned.....65@75c

OPENERS.

Box.
Inches..... 10 12 14
Flat.....per doz. $2.85 3.60 4.15
Round.... " 2.10 2.25 2.75
Can.
Delmonico.....per doz $1 30
Never Slip..... " 65
Crate.
V. & B..... " 5 75

OUTFITS, COBBLING.

Combination.....per dos. 11 00
Economy..... " 4 65
Family..... " 9 75

PADLOCKS.

Standard Wrought.....75&5%
Champion.....50%
Eureka.....40, 10&5%
Yale.....60&5%

PAILS.

Cream.
14-qt , without gauge, per dos. $2 50
20-qt., " " " 3 00
20-qt., with gauge.... " 3 50
Sap.
10-qt., Galvanized, per 100....$13 00
12-qt., " " 14 50
14-qt., " " 16 25
16-qt., " " 17 75
10-qt., IC Tin..... " 10 25
12-qt., " ..... " 11 75
14-qt., " ..... " 13 00
10-qt., IX Tin..... " 12 75
12-qt., " ..... " 16 00
14-qt., " ..... " 17 00
Stock.
Galv'd, qts. 14 16 18 20
Per dos..... $3.75 4.00 4.75 5.25
Water.
Galvanized... qts. 10 12 14
Per dos..... $1.95 2.20 2.45
Wood.
Cable, 2-Hoop.....per dos. $1 70
Cable, 3-Hoop..... " 1 90
Cedar, 3-Hoop..... " 2 85
Standard, 2-Hoop.... " 1 60
Standard, 3-Hoop.... " 1 80

PANS

Dripping.....60&5%
Fry
Common .....75&10%
Acme 70%
Roasting.
Paxton,
Nos..... 1 2 3 4
Per dos.... $4.75 5.75 6.50 7.50
Neverburn.. 4.00 4.50 5.50 6.00
Savory, No. 200.....per dos. $8.00

PAPER.

Building.
Plain.....per 100 lbs. $1 25
Tarred..... " 1 35
Tarred Felt..... " 1 65
No. 20, Red Rosin....per roll, 40
No. 30, Red Rosin.... " 55
Sand and Emery.
Star..... low list, 50%
B. & A.....50%
Wrapping.
Drab Fiber.....per lb. $0 00
Rag..... " 0 00

PARERS.

Apple.
Bay State.....per doz. $13 00
Turntable..... " 0 00
White Mountain..... " 5 00
Reading..... " 7 00
Potato.
Goodsell's Saratoga, 10½ in., doz. 6 50
Goodsell's Saratoga, 5 in., doz. 5 50

PICKS.

Adze Eye Ore.....70%
Drifting and Poll Picks.....70%
Plumbs, Railroad.....70%
Surface.....70%

PINCERS.

Carpenters', cast steel.

Inches	6	8	10	12
Per doz.	$2.00	2.60	2.95	3.75

Blacksmiths'.....45%
Heller's.....40%

PINS.

Clothes.
Common.....per box of 5 gro $0 52
Hoyt's..... " " 31
U. S..... " " 70
Picket.
Fluted, 15-in.....per doz. $0 70
Fluted, 21-in..... " 1 60
Spiral..... " 1 90

PIPE.

Conductor.

	Gal. Steel	Charcoal
L. C. L. to Dealers:—		
Eastern	70&10%	50&10&2½%
Pittsburgh	75&10&5%	60%
Central	75&10%	60%
Northwestern	75&7½%	60%
Western	70&12½%	50&12½%
Tennessee	70&10%	50&12½%
Southern	70%	50&12½%
Southwestern	70%	50&5%

Terms 60 days; 2% Cash 10 days.
Factory shipments generally delivered.

Lead.
Full coils.....per lb. 7½c
Cut coils..... " 7½c
Stove

Acme—Inches	5	6	7
Smooth, per jt	8½c	9½c	10½c
Planished, "	32 c	33 c	43 c
Peerless—Smooth,	7½c	8 c	9½c
Polished	14½c	15½c	18 c
Planished	28 c	31 c	35½c
Made-up—Inches	5	6	7
Smooth	7½c	8 c	9½c

7 to 6 in. Smooth Tapers, pr jt...18c
6 in. Smooth T's..... " 27c
7 to 6 in. Planished Tapers.....45c

Yale Patent Lock Pipe—Stove.

	5"	6"	7"	7"to6"
	—Cents—			
Battle Axe Blue	7	7½	9½	10½
Can't Slip "	7½	8½	10	11
Peerless "	7½	8½	10	11
Duplex "	10	11	13	14
Yale, Rus. Fin.	15	16	17	18
Duplex Planished.	29	31	37	38
Galvano, Gal.	15	16	17	18

If wanted made up, add per joint or grooved, 1c; riveted, 1½c. Crating made-up pipe extra.

Wrought Iron Gas Pipe.
⅛@¼-in., black.....discount, .60%
⅛@¼-in., black..... " 60,10&5%
⅜-in. to 6-in., black... " 70%
7-in. to 12-in., black... " 62½%
⅛@¼-in., galvanized.... " 42%
⅛@¼-in., galvanized.... " 50%
⅜-in. to 6-in., galvan'd " 57½%
7-in. to 12-in., galvan'd " 45%

PLANES.

Sargent Iron Bench.....60%
Stanley Iron Bench.....25&5%

PLATES, TIN.

See Metals in Column 1.

PLIERS.

Giant, Button's—80% off list.
Cutting
Bernard's.....30%
Lodi.....50%
Upper End and Diagonal Cutting
Swedish Side.....70%
Utica Drop Forge & Tool Co....60%
Fencing.
Black Bull.....per doz. $8 25
Farmers' Choice.....per doz. $8 00
Russell's..... " 8 25
Flat and Round Nose.
Bernard's.....30%
German.....65%
Lodi.....50%
Paragon.....50%
Gas.—Inches.. 7 8 10 12
Per doz..... $3.00 3.50 4.50 5.50

Tinners'.
Hollow.....40%
Solid.....each, 5½c

PLUMBS AND LEVELS

Common.....60&10&10%
Cook's.....40%
Davis' Iron.....25%
Davis' Inclinometer.....15%

POINTS

Drive Well Points.....75&5%

POKERS, STOVE.

Wr't Steel, str't or bent, per doz. $0 55
Wr't Steel, wood hand'ls " 80
Nickel Plated, coil hand'ls " 65

POKES, ANIMAL.

Cracker Jack, wr't steel, per doz. $4 50

POLISH.

Metal.
White Silk, half pints, per doz. $2 00
White Silk, 6-oz. cans, per doz. 1 00
Shoe.
M. C. D.....per doz.....36c@50c
F. C. O..... " 40c
T M..... " .53c@$1 75
Imperial.....per gro 5 00
Stove.
Black Eagle, 1-lb. cans, pr. gr. $15 00
Black Silk—
5-lb. pail..... $0 70
Paste, 5-oz. cans....per doz. 75
Paste, ½-lb. cans.... " 1 05
Liquid, ½-pt. cans... " 1 05
Liquid, 6-oz. cans... " 75
Black Jack, ½-lb. cans. " 9 25
Dixon's Carb. of Iron. " 5 75
Nickel Plate..... " 4 50

POPPERS, CORN.

Round or Square, 1-qt. per doz. $1 05
Square, 1½-qt..... " 1 15
Square, 2-qt..... " 1 35
4-qt..... " 3 75

POTS, FIRE.

Clayton & Lambert's, each, $4 75@6 25
Gate City.....each, 6 25
Gem.....each, $6 75@8 50

POWDER.

See Ammunition.

PRESSES, FRUIT AND JELLY.

Enterprise Manufacturing Co.....25%

PRIMERS

See Ammunition.

PRUNERS.

Disston's Pole.....per doz. $6 50
Henry's Improved..... " 75&10%
Water's Improved..... " 80%

PULLERS.

Cork.
Daisy..... each, $3 10
Phœnix..... " 1 40
Quick and Easy..... " 2 70
Nail.
Giant.....per doz. 10 50
Giant Pattern..... " 6 00
Jumbo..... " 9 00
Tack—Giant..... " 40

PULLEYS.

Awning—Jap'd.....60%
Clothes Line.....50&10%
Hay Fork.
Iron Wheel, 5-in.....per doz. $1 75
Wood Wheel, 6-in.... " 1 75
Wood Wheel, 6-in., pass knot, ...per doz. 2 15
Hot House—Jap'd.....30&10%
Screw—Jap'd.....60%
Side—Jap'd.....50&10%
Sash.
Common.....per doz. $0 16
Common-Sense, 2-in.. " 20
Empire Pattern, 2-in.. " 20
Ideal..... " 30
Steel..... " 25

PUMPS.

Pitcher Spout.

Nos.	1	2	3	4
Each	$1.00	1.15	1.30	1.70

Spray.
Blizzard.....per doz. $14 50
Cyclone, tin..... " 3 40
Cyclone, copper..... " 6 75
Daisy..... " 9 00
Little Giant.....each,... 2 25

PUNCHES.

Conductors'.
No 23.....per doz $2 2
Machine.....per lb 19
Saddlers'.
Common.....per doz 60c@70c
Good..... " 72c@84c

PUTTY.

In Bladders.
Strictly pure.....per 100 lbs. 2 35

RAIL.

Barn Door.
Matchless, 1-in..... 3 c
Matchless, 1½-in..... 3½c
Storm King..... 4 c
Sliding Door.
Painted steel.....per ft. 4½c
Bronzed wrought iron...per ft. 8½c

RAKES.

Coal or Wood.....per doz. $5 20
Garden.
Steel.....70%
Steel, bow.....70%
Malleable iron, heavy.....60&10%
Hay.
Wood.....$1 50@$2 00
Lawn—Wood.
XXX.....per doz. $3 00
Automatic..... " 5 25
Lawn Queen..... " 2 75
Jumbo, 36 teeth..... " 5 25

RASPS—See Files.

RAZORS.

Bo-ras-ic.....50%
Red Devil.....50%
Tree Brand.....50%

REGISTERS.

(All Sizes)

Japanned, Bronzed and Plated...70%
White Porcelain Enameled...50&10%
Solid Brass and Bronze Metal....40%
Single Valve (Baseboard and Sidewall).....70&10%

REGISTER FACES

Japanned, Bronzed and Plated
4x6 to 14x14.....70%
14x14 to 28x42.....75&10%
Heavy Round Gratings.....75&10%
White Porcelain Enameled...50&10%
Solid Brass or Bronze Metal.....40%

RINGS.

Bull.

	2½ in.	3in.
Copper		
Per doz.	$1 10	$1 40
Rea's Improved Self-Piercing copper, pr doz	2 00	....
Steel, per doz.	85	95
Nickel plated	1 35	....

and Ringers—Hog.
Blair's Rings.....per doz. $0 58
Blair's Ringers..... " 75
Brown's Rings..... 50
Brown's Ringers..... " 90
Champion Ringers.... " 60
Hill's Ringers..... " 70
Hill's Ring, boxes.... " 47
Major Rings..... " 60
Perfect Ringers..... " 95
Wolverine Rings..... " 1 45
Wolverine Ringers.... " 80
Fruit Jar.
White.....per lb.....30c
Key.
Split, round.....per doz. $0 17
Split, square..... " 32
Ball, round..... " 32

RIVETS.

and Burrs.
Copper Belt.....40%
Coppered Iron.....60&10&5%
Tinners'.....60&10%
Hame.....per lb. $0 10
Slotted Clinch per doz 40c@45c
Tubular
Nos 1 and 2 assorted sizes, doz, 45c

RIVET SETS

See Sets.

ROPE.

Cotton.
¼, 5-16 in. Com on reels. .per lb. 11½c
¼, 5-16 in Com. in coils.. " 12 c
¼, 5-16 Imperial in coils.. " 21 c
Sisal.
1st Quality.....12 c
Hardware Grade, rates, per lb...10 c
Pure Manila.
1st quality.....per lb. 15½c
Hardware Grade, rates... " 14½c

RULES.

Boxwood.....50&10%
Ivory.....

SASH WEIGHTS.

See Weights.

SAWS.

Back.
Disston's.....25%
Jackson's.....25%
Butchers'.
Disston's.....30%
Circular.
Disston's.....50%
Hiles'.....50&10%
Compass.
Common.....per doz $1 35@1 60
Disston's.....%25
Cross-Cut
Disston's.....45%
Dehorning.
Disston's.....per doz. $5 75
Hack.
Disston's.....25%
Keystone.....30%
Hand and Rip.
Brown's.....30%
Disston's No. 7.....30%
Disston's Nos. 8, D8, 12, 76, 112, D100, and 120 (new list).....25%
Keystone.....30%
Enterprise, hand.....per doz. $5 00
Our Saw, hand..... " 4 00
Our Saw, rip..... " 4 50
Keyhole—Disston's.....25%
Kitchen.
Sterling.....25%
One Man.....50%
Panel
Brown's.....30%
Disston's No. 7.....30%
Disston's No. D100.....25%
Pruning.
Brown's.....25%
Disston's.....25%
Wood
Common.....per doz. $4 50
Clover Leaf..... " 6 00

SAW BUCKS—See Bucks.

SAW SETS—See Sets.

SAW TOOLS—See Tools.

SAW FRAMES.

Common, plain.....per doz. $1 25
Common, painted..... " 1 70

SCALES.

Counter.
Pelouze.....40&10%
Platform.
Osgood.....50%

SCOOPS.

Grain.
½-bu. "Hercules".....per doz. 13 70
1-bu. "Hercules"..... " 15 00

SCRAPERS.

Box.
Triangular.....per doz. $4 00
Cabinet.
Cast Steel.....per doz, 60c@75c
Road.

Cubic ft.	7	5	3
Without run's, ea.	$4.00	3.75	3.50
With runners, ea.	4.25	4.00	3.75

SCREWS.

Bench.

Iron, in	1	1½	1½
	$3.50	4.00	4.75

Wood, white maple...per doz. $3 50
Hand—Wood.....10%
Hand Rail.....60&10%
Jack.....70&10&5%
Lag or Coach—all sizes, gimlet pointed.....75&5%
Saw—Centennial.

Nos.	1	2	3	4	5	6
Per dos.	18c	20c	26c	30c	23c	25c

Wood.
F. H. Bright.....87½&5%
R H Blued.....65%
F. H. Jap'd.....82½%
F. H. Brass.....85%
R. H. Brass.....80%
R. H. Nickel Plated.....75-10%

SCYTHES.

Be Ve Be, grass.....per doz. $6 00
Clipper, grass..... " 8 25
Clover Leaf Dutchman..... " 7 50
Honest Dutchman..... " 7 50
Be Ve Be..... " 7 50

SHAVING SETS.

Smith & Hemenway.....60%

SETS.

Nail.
Round, common ..... per doz. $0 33
Square, common ..... " 42
Octagon, common ..... " 33
No. 5, square ..... " 75
Cup point, knurled ... " 75
Rivet.
Farmers' ..... per doz. $1 20
Tinners' ..... 50&10%
Saw.
Aiken's Pattern ..... per doz $3 50
Common Lever ..... " 1 20
Disston's Monarch .... " 6 50
Disston's X Cut ..... " 12 00
German ..... " 1 05
Leach's ..... " 80
Nash's Hand ..... " 3 15
Nash's X Cut ..... " 4 20
Stillman's Lever ..... " 1 30
Stillman's X Cut ..... " 2 50

SHARPENERS, SKATE.

Diamond ..... per doz $1 60
Smith & Hemenway 20%

SHAVES, SPOKE

Iron ..... per doz $1 10@1 85
Wood ..... " 2 75@4 75
Bailey's ..... 50&5%
Goodell's 15%

SHEARS

Pruning
Buckeye, No. 1 ..... per doz $5 75
Buckeye, No. 2 ..... " 7 40
California Pat., 9-in.. " 3 20
California Pat., 10-in.. " 4 00
Draw Cut, No. 3 ..... " 13 75
Draw Cut, No. 4 ..... " 16 50
Henry's Pat. 0 01 14 012
Per doz. $1.40 2.10 2.90 2.80
Star ..... per doz $4 00
Sheep—No BBA.
Inches 6 6½ 7
Reg. Grip $11.25 11.50 12.00
Nar. Grip, doz 11.00 11.25 12.25
Tinners'—See Snips.

SHEAVES, SLIDING DOOR.

Common.
Inches 3 4 5
Per set ..... $0.34 .42 .70
Hatfield's.
Per set $0.75 1.00 1.60

SHELLS—See Ammunition.

SHELLERS, CORN.

Union ..... per doz. $0 75

SHIELDS.

Expansion Bolt Shields ..... 50&10%

SHOES.

Conductor ..... 60&10%

SHOT—See Ammunition.

SHOVELS AND SPADES.

Coal.
No 2 Woodford ..... per doz. $5 50
No. 182 ..... " 6 00
Ames' new list ..... Discount, 12½%
Per doz.
Neverbreak, hollow bck, blk. $15 75
National .... " " " 14 75
Buckeye .... " " " 10 00
Mohawk .... " " " 9 00
Drain.
Iwan's Perfection 50%
Railroad, etc.
Black Diamond ..... per doz. $1 50
Crescent ..... " 5 75
Keystone ..... " 8 75
Star ..... " 4 75
Vaterland ..... " 9 50
Hollow Back ..... " 4 75
Ames, new list ..... Discount, 12½%
Snow.
Per doz ..... $1.65@$9.00
Alaska Steel.
D Handle ..... per doz. $3 50
Long Handle ..... " 3 00

SINKS.

Cast Iron.
Painted ..... 50&10%
Enameled, White ..... 50&10%
Wrought Steel.
Painted, new list ..... 40-10&5%

SLEDGES—See Hammers.

SNAPS, HARNESS.

Champion 33⅓%
German Pattern ..... 30&5%
Judd's Pattern 50%

SNATHS.

Double Ring, Bush ..... per doz. $6 00
Patent Loop, Bush ..... " 5 75
Patent Loop, Grass ..... " 5 50

SNIPS, TINNERS'.

Clover Leaf ..... 40&10%
National ..... 40&10%

SOLDER—See Metals.

SPRINGS, DOOR.

Perfect.
Nos. 1 2 3 4
Per doz 30c 35c 40c 54c
Reliance.
Per doz ... light, $1.25; heavy, $2 50
Star.
Per doz .... light, 90c; heavy, $1 35
Torrey's ..... per doz. $1 35
Warner's No. 11 13
Per doz 75c $1 35

SQUARES.

Steel and Iron ..... 70&10%
(Add for bluing, $2.50 per doz., net.)
Mitre.
Try.
Try and Bevel.
Try and Miter.
Fox's ..... per doz. $5 75
Winterbottom's 70%

SQUEEZERS, LEMON.

Common Wood ..... per doz. $0 70
Porcelain Lined, Wood. " 1 25
Boss, malleable iron .... " 1 20
Iron Frame, porc'n bowl " 1 90
Iron Frame, glass bowl . " 2 35
Little Giant, tin'd iron . " 4 00
Drum, japanned ..... " 3 60
Drum, nickel plated ... " 4 50

STAPLES

Blind.
Barbed ..... per lb . . 9½@9½c
Butter Tub ..... " .....8 @8½c
Fence—less than carload.
Polished ..... per 100 lbs. $2 30
Galvanized ..... " 2 60
Netting.
Galvanized ..... per 100 lbs. 4 00
Wrought.
Wrought Staples, Hasps and Staples, Hasps, Hooks and Staples, and Hooks and Staples ..... 80-10&10%
Extra heavy ..... 75&10%

STEELYARD.

Discount 25%.

STONES.

Axe.
Hindostan ..... per lb 5½@7 c
More Grit ..... " 9½c
Washita ..... " 17 c
Emery ..... 60% @60&5%
Oil—Mounted.
Arkansas Hard ..... per doz. $23 00
Arkansas Soft ..... " 15 50
Hindostan ..... per lb 6½@6½
Oil—Unmounted.
Arkansas Hard ..... per lb $2 05
Arkansas Soft ..... " 1 10
Lily White ..... " 45
Queer Creek ..... " 15
Ouachita ..... " 38
Washita ..... " 26
Scythe.
Black Diamond ..... per gro. $8 00
Crescent ..... " 4 25
Gem Corundum ..... " 7 50
Green Mountain ..... " 4 50
La Moille ..... " 7 00
Quinnebog ..... " 5 00
Red End ..... " 3 75

STOPS, BENCH.

Hotchkiss' ..... per doz. $3 50
Stearns' ..... " 4 75

STOPPERS, FLUE.

Common ..... per doz. $0 40
Crown ..... " 45
Gem, flat, painted ..... " 35
Gem, cor'd, decorated ... " 70
Kirch's ..... " 90
Perfect ..... " 70@85
Skinner's Common Sense " 80

STOVE PIPE—See Pipe.

STOVE BOARDS—See Boards

STOVE POLISH—See Polish.

STRAPS.

Scoop ..... per doz prs., $1 85
Skate ..... " " 60@70c

STRETCHERS.

Carpet.
Bullard's ..... per doz. $3 90
Excelsior ..... " 5 25
Malleable Iron ..... " 70
Perfection ..... " 6 30
King ..... " 4 50
Wire.
N. S. Elwood's ..... per doz. $6 00
O. S. Elwood's ..... " 6 00
Little Giant ..... " 5 75
Safety ..... " 10 00
Star Lever ..... " 6 25
Canton Tackle Block. " 9 50
Warner's ..... " 6 25

SWIVELS.

Malleable Iron ..... per lb. $0 70
Wrought Steel ..... per gro. 4 50

TACKS.

American Cut ..... 90&15%
American Wire ..... 85&20%
Bill Posters Cut ..... 90&20%
Glued Carpet ..... 90&10%
Tinned Carpet ..... 90&10%
Gimp ..... 90&10%
Upholsters' Cut ..... 90&20%
Upholsters' Wire ..... 90&10%
Double Pointed 90%
Copper ..... per lb. 32c
Canvas Nails ..... 75&5%
Clout Nails ..... 75&10%
Hungarian Nails 80%

TAPES, MEASURING.

Asses' Skin ..... 40&10%
Bend Leather 20%
Patent Leather 20%
Lufkin's Steel 25%
Lufkin's Metallic 30%

TEE BEVELS—See Bevels.

THERMOMETERS.

Tin Case ..... per doz. 80c@$1 25
Wood Back ..... " $2.00@12 00
Glass ..... " 12 00

TIES.

Bale.
Single Loop ..... 80&5%
All other kinds 70%
Cow—See "Chains."

TOOLS, SAW.

Disston's Universal 40%
Miniature.
Smith & Hemenway 25%

TRAPS.

Fly.
Ballon ..... per doz. $1 25
Harper's ..... " 1 35
Game.
Newhouse ..... 40&10%
New Victor ..... 70&10%
Mole.
Reddick's ..... per doz. $6 00
Mouse and Rat.
Wood Choker .. per doz. holes $0 13
Tin Choker .... " " 75
Delusion ..... per doz. 1 15
Marty Rat ..... " 6 25
Marty Rat Imitation . " 3 50
Marty Mouse ..... " 3 00
Marty Mouse Imitation " 2 00
Hold-em, wire rat .... " 3 75

TROWELS.

Brick.
Clover Leaf 30%
Brade's ..... 15&5%
Disston's 30%
Rose's 20%
Plasterers'.
Clover Leaf 40%
Disston's 25%
W. & McP 25%

TRUCKS.

Bag ..... each, $2 75
Handy ..... " 1 85
Warehouse ..... 50&10%
No. 1 2 3
Half Ironed $3.00 3.85 5.50
Full Ironed 3.45 4.50 6.45

TUBS, WASH

Standard, Wood. Ex.
Nos. ..... 3 2 1 large
Per doz $5.00 6.00 7.00 9.50
Dowell.
Per doz 5.35 6.35 7.00 9.50
Cedar.
Per doz 6.10 7.10 7.90 10.80
Indurated.
Per doz 8.55 9.45 10.80 13.50
Galvanized.
No 1 2 3
Per doz $6.00 6.75 7.75

TWINE.

Per lb.
3-ply Cotton Wrapping 25c
4 " " " 25c
" " Extra Wrapping 27c
4 " " " Hvy. Wrapping 25c
4 " " Wrapping on tubes 27c
3 " " " cones 25c
4 " " " " " 35c
India Hemp, ½-lb. balls 19c
" " ½-lb. " 18c
" " ½-lb. " ..... doz. 75c
2-ply Jute, ½-lb. " 14c
3-ply Jute, ½-lb. " 13c
Jute Wrapping, ½-lb. balls..... 14c
Jute Wool, 1-lb. balls..... 9½c
Seine.
Nos. 9 12 15
Soft ..... per lb 26½ 26 25
Med ..... " 26½ 26 25
Hard ..... " 27 26½ 26
Staging, ½-lb. ball, size 21 ..... 26½c
" " " " 24 ..... 26c
" " " " 27 ..... 26c
Bagging " " 23c
3-p y "B" in hanks 18c
4- " "B" " 18c
3 " "A" " 27c
3 " Silver Finish, in hanks ... 37c
Fodder or Lath.
130 strand 6½c
200 strand ..... —c

VISES.

Phœnix 30%
Phœnix Oval Slide.
Inches 2½ 3 3½ 4½
Each $1.25 1.50 1.85 2.75
Parker's Parallel 20%
Parker's Victor 20%
Parker's Swivel Base 20%
Parker's Re-inforced 20%
Parker's X Series 20%
Parker's Combination 20%

No. 110, Bicycle ..... " 31 50
No. 500, Royal ..... " 32 50
No. 350, Universal ..... " 28 00
No. 300, Novelty ..... " 28 00
No. 310, Keystone ..... " 28 00
No. 100, Rival ..... " 28 50
Solid Box ..... 40&5%
Adams' Mechanics' ..... each 2 50
Williamson's Universal 60%

WARE.

Stove Hollow Ware.
Plain or Unground 50%
Ground Ware 45%
Enameled Ware 33⅓%
Country Hollow Ware, per 100 lbs. $3 00
White Enameled Ware.
Maslin Kettles ..... 60&10%
Covered Ware.
Tin'd and Turn'd ..... 35&10%
Enameled ..... 45&10%
Glue Pots,
Tinned 25%
Enameled 30%
Enameled.
Cherry Blossom and Chrysolite..50%

WASH BOARDS—See Boards.

WASHERS.

Standard O G. cast iron . . . per lb. 2½c
Wrought iron in bulk, per lb.:
In. ⅜ ½ ⅝ ¾ ⅞ 1
9c 6½c 5c 4½c 4½c 4½c 3½c
Wrought steel in 5-lb. boxes, per lb.:
In. ⅜ ½ ⅝ ¾ ⅞ 1
10 7c 6c 5½c 5c 5c 4½c

WASHING MACHINES—See Machines.

WEDGES.

Axe ..... per doz. $0 30
Galling ..... per lb. 10½
Saw ..... " 9½

WEANERS.

Calf.
Fuller's, per doz ..... $2 00 to $2 50
Tyler's Safety, per doz 1 85 to 2 40
Carroll's, per doz ..... 3 00 to 3 75
Standard, per doz 3 00
Hoosier, per doz ..... 3 50 to 4 60

WEIGHTS.

Hitching ..... per lb. 2½c
Sash—f.o.b Chicago .... pr ton, 26 50

WHEEL BARROWS.

Common Railroad ..... per doz. $17 00
Heavy Railroad ..... " 24 00
Panama Steel Tray .... " 39 00
Klondike Steel Tray .. " 28 00

WHEELS.

Corundum ..... 70&10&5%
Emery ..... 75&5%
Well. Inches.. 8 10 12 14
Per doz $2.40 3.25 4.00 6.00

WIRE.

Barbed. Painted. Galv'd
Carloads .. per 100 lbs. $2.33 $2.63
Less than car " 2.43 2.73
Brass.
In coils 20%
In 1-lb. spools, new list 50%
Broom—Tinned . . . 60&10&10&10%
Cable—Same price as Barbed Wire.
Copper.
In coils ..... 20&10% 33⅓%
1-lb. spools, new list ..... 50&10%
Fence—Smooth.
Nos. 6 to 9, An'eal'd, pr 100 lbs. $2 30
Nos. 6 to 9, Galv'd .. " 2 00
Hair—New List 50%
Market.
Bright, full bdles ..... 70&5%
Bright, broken bdles 70%
Coppered, full bdles 70%
Coppered, broken bdles .... 65&10%
Tinned, full bdles ..... 75&5%
Tinned, broken bdles ..... 65&10%
Picture—In coils .... 80% @80&10%
In 5-lb. spools ..... per lb..... 20c
Plain—Small lots $2 10
Car lots 2 05
Small spools 5c per 100 higher.

WRENCHES.

Acme Standard 60%
Alligator No. 1 ..... 85cnet
Always Ready 50%
Agricultural ..... 75&5%
Ellis Adjustable 25%
Malleable "S" ..... per lb. 08c
Malleable ..... " 08c
Stillson Pipe 70%
Bemis & Call's:
Adjustable S, 40&5%; Adjustable S Pipe, 40&5%; Briggs Pattern, 40%; Combination Bright, 50%
Steel Handle Nut ..... 50&5%
Combination Black ..... 50&5%
Merrick Pattern ..... 50&5%
Double End Adj. S ..... 40&5%

WRINGERS.

No. 22, Guarantee .... per doz. $22 50
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Schoedinger, F. O., Columbus, O

Copper and Brass

Hussey & Co., C. G., Pittsburg, Pa

Corn Cribs

Denning Wire & Fence Co., Cedar Rapids, Ia

Cornices

Berger Mfg. Co., Canton, O
Canton Art Metal Co., Canton, O
Canton Mfg. Co., Canton, O
Eller Mfg. Co., Canton, O
Foster & Sons Co., Wm., Springfield, Ill
Milwaukee Corrugating Co., Milwaukee, Wis
Mullins Co., W. H., Salem, O
Schoedinger, F. O., Columbus, O

Cornice Brakes

Bertsch & Co., Cambridge City, Ind
Niagara Machine & Tool Works., Buffalo, N. Y
Robinson, Mfg. Co., J. M., Cincinnati, O

Counters

Heller & Co., W. B. Montpelier, O

Crimping Machines

Robinson Mfg. Co., J. M., Cincinnati, O

Cutlery

Smith & Hemenway Co., New York, N. Y

Cut Offs—Rain Water

Milwaukee Corrugating Co., Milwaukee, Wis
Sullivan-Geiger Co., The, Indianapolis, Ind

Dampers

Howes Co., S. M., Boston, Mass
Taylor & Boggis Fdy. Co., Cleveland, O

Door Hangers

Richards Mfg. Co., Aurora, Ill

Door Holders

Caldwell Mfg. Co., Rochester, N. Y

Eaves Trough

Canton Art Metal Co., Canton, O
Canton Mfg. Co., Canton, O
Eller Mfg. Co., Canton, O
Foster & Sons Co., Wm., Springfield, Ill
Milwaukee Corrugating Co., Milwaukee, Wis
Mullins Co., The W. H., Salem, O
Schoedinger, F. O., Columbus, O
Whitacre, J. E. Mfg. Co., Rockford, Ill
Wheeling Corrugating Co., Wheeling, W. Va

Eave Trough Hangers

Canton Mfg. Co., Canton, Ohio

Elbows—Conductor Pipe

Canton Art Metal Co., Canton, O
Canton Mfg. Co., Canton, O
Dieckmann, Ferdinand, Cincinnati, O
Eller Mfg. Co., Canton, O
Milwaukee Corrugating Co., Milwaukee, Wis
Wheeling Corrugating Co., Wheeling, W. Va

Elevators

Kimball Bros Co., Council Bluffs, Ia

Enameled Ware

Elliott Mfg. Co Warren, Ill
Star Enameling & Stamping Co., Pittsburg, Pa

Fencing—Wire

American Steel & Wire Co., Chicago, Ill
Denning Wire & Fence Co., Cedar Rapids, Ia
Pittsburg Steel Co., Pittsburg, Pa

Files

Carver File Works, Philadelphia, Pa
Disston, Henry & Sons, Philadelphia, Pa

Fire Arms

Standard Arms Co., Wilmington, Del

Fixtures—Store

Warren Mfg. Co., J. D., Chicago, Ill

Flue Stoppers

Stuber & Kuck, Peoria, Ill

Forming Rolls

Bertsch & Co., Cambridge City, Ind
Niagara Machine & Tool Works, Buffalo, N. Y

Furnace Cement

Connors Paint Mfg. Co., Wm., Troy, N. Y

Furnaces—Hot Air

Bonnot Co., The, Canton, O
Boynton Furnace Co., Chicago, Ill
Co-operative Fdy. Co., Rochester, N. Y
Chicago, Ill
Danville Stove & Range Co., Danville, Pa.
Excelsior Steel Furnace Co., Chicago, Ill
Germer Stove Co., Erie, Pa
Graff Furnace Co., New York, N. Y
Green Fdy. & Fur. Wks., Des Moines, Ia
Haynes-Langenberg Mfg. Co., St. Louis, Mo
Henry & Scheible Co., Cleveland, O
Interstate Mfg. Co., Oskaloosa, Ia
Meyer Furnace Co. Peoria, Ill
Monroe Fdy. & Furn. Co., Monroe, Mich
Moore Bros. Co., Joliet, Ill
Mt. Penn Stove Works, Reading, Pa
Richardson & Boynton Co., Chicago New York, Boston
Schwab, R. J. & Sons Co., Milwaukee, Wis
Sprague Fdy. & Mfg. Co., Council Bluffs, Ia.
Stove & Range Co. of Pittsburgh, Pittsburgh, Pa
XXth Century Heat. and Vent. Co., Akron, O
Utica Heater Co., Utica, N. Y
Youngstown Furn. & Supply Co., Niles, O

Furnaces—Soldering

Burgess Soldering Fur. Co., Columbus, O
Clayton & Lambert Mfg. Co., Detroit, Mich
Diener Mfg. Co., Geo. W., Chicago, Ill
Meyer Fdy. & Mfg. Co., South Bend, Ind
Ringen Stove Co., St. Louis, Mo

Furnace Pipe and Fittings

Excelsior Steel Furnace Co., Chicago, Ill
Green Fdy. & Furn. Wks., DesMoines, Ia
Meyer & Bro. Co., F., Peoria, Ill
Michigan Safety Furnace Pipe Co., Detroit, Mich

Furnace Rings

Walworth Run Fdy Co., Cleveland, O

Galvanized Ware

Elliott Mfg. Co., Warren, Ill
Wheeling Corr. Co., Wheeling, W. Va

Gas Machines

Whitacre Mfg. Co., J. E., Rockford, Ill

Gas Stoves

Stove & Range Co. of Pittsburgh, Pittsburgh, Pa

Grain Bins

Denning Wire & Fence Co., Cedar Rapids, Ia

Grind Stones

Richards Mfg. Co., Aurora, Ill

Hardware Jobbers

Clark, Quien & Morse, Peoria, Ill

Hardware Specialties

Bishop Hardware Co., Dowagiac, Mich
Caldwell Mfg. Co., Rochester, N. Y
Lovell Mfg. Co., Erie, Pa
Richards Mfg. Co., Aurora, Ill
Smith & Hemenway Co., New York, N. Y
Taylor & Boggis Foundry Co., Cleveland, Ohio

Hinges

Lawson Mfg. Co., Chicago, Ill

Hollow Ware

Avery Stamping Co., Cleveland, O
Sperry, D. R. & Co., Batavia, Ill

Horse Nails

Standard Horse Nail Co., New Brighton, Pa

Horse Shoes

American Steel & Wire Co., Chicago, Ill

Hotels

Lenox Hotel, Buffalo, N. Y

Ice Cream Freezers

North Bros. Mfg. Co., Philadelphia, Pa

Iron Enamel

Black Silk Stove Pol. Wks., Sterling, Ill
Nickel Plate Stove Polish Co Chicago, Ill

Kitchen Utensils

Avery Stamping Co., Cleveland, O
Kinne Mfg. Co., Minneapolis, Minn
Star Enameling & Stamping Co., Pittsburgh, Pa

Ladders—Shelf

Milbradt Mfg. Co., St. Louis, Mo

Lighting Systems

Detroit Heating & Lighting Co., Detroit, Mich
Whitacre Mfg. Co., J. E., Rockford, I

Lightning Rod

Electra Lightning Rod Co., Cresco, Ia
Foy, Edw. A. & Co., Cincinnati, O
Maher & Son Lightning Rod Co., Preston, Ia

Metal—Perforated

Harrington & King Perforating Co., Chicago, Ill

Metal Polish

Black Silk Stove Polish Wks., Sterling, Il
Nickel Plate Stove Polish Co., Chicago, Il

Metal Shingles

Canton Art Metal Co., Canton, O
Milwaukee Corrugating Co., Milwaukee, Wis
National Sheet Metal Roofing Co., Jersey City, N. J

Mica

Brauer Supply Co., A. G., St. Louis, Mo
Munsell & Co., Eugene, New York and Chicago

Miters

Whitacre, J. E. Mfg. Co., Rockford, Ill

Nails and Tacks—Copper

Hussey & Co., C. G., Pittsburg, Pa
Keystone Nail Co., Pittsburg, Pa

Nuts

Columbus Bolt Works, Columbus, O

Elliott Mfg. Co., Warren, Ill

Paints and Paint Specialties

Connors, Wm., Paint Mfg. Co., Troy, N. Y
Dixon, Jos., Crucible Co., Jersey City, N. J

Pencils

Dixon, Jos., Crucible Co., Jersey City, N. J

Perforated Metal

Harrington & King Perforating Co., Chicago, Ill

Pipe—Furnace

Meyer & Bro. Co., F., Peoria, Ill
Michigan Safety Furnace Pipe Co., The Detroit, Mich

Plungers

Berger Bros. Co., Philadelphia, Pa

Post Hole Diggers

Iwan Mfg. Co., South Bend, Ind

Pumps

Star Bucket Pump Co., St. Louis, Mo

Punches

Armstrong-Blum Mfg. Co., Chicago, Ill
Bertsch & Co., Cambridge City, Ind
Napanee Iron Works, Napanee, Ind
Niagara Machine & Tool Works, Buffalo, N. Y
Robinson Mfg. Co., J. M., Cincinnati, O
Weis & Co., H., New York, N. Y

Putty—Stove

Connors, Wm., Paint Mfg. Co., Troy, N. Y

Radiators

Kellogg-Mackay Co., Chicago, Ill

Ranges

Disston, Henry & Sons, Philadelphia, Pa
Garver Fue Works, Philadelphia, Pa

Razors

Smith & Hemenway Co., New York, N. Y

Registers

Excelsior Steel Furnace Co., Chicago, Ill
Ferrosteel Co., Cleveland, O
Henry & Scheible Co., Cleveland, O
Mueller, L. J., Milwaukee, Wis
Schwab & Sons Co., Milwaukee, Wis
Tuttle & Bailey Mfg. Co., New York, N. Y
Walworth Run Fdy. Co., Cleveland, O

Rivets

Columbus Bolt Works, Columbus, O

Roasters

Wheeling Corrugating Co. Wheeling, W. Va

Roofers' Supplies

Auld & Conger Co., Cleveland, O

Roofing—Iron and Steel

American Sheet & Tin Plate Co., Pittsburgh, Pa
Canton Art Metal Co., Canton, O
Canton Mfg. Co., Canton, O
Eller Mfg. Co., Canton, O
Follansbee Bros. Co., Pittsburgh, Pa
Friedley & Voshardt, Co. Chicago, Ill
Griffiths Charcoal Iron Mills, Washington, Pa
Inland Steel Co., Chicago, Il
Milwaukee Corrugating Co., Milwaukee, Wis
Nat'l Sheet Metal Roof. Co., Jersey City, N. J
Schoedinger, F. O., Columbus, O
Stark Rolling Mill Co., Canton, O
Sykes Steel Roofing Co., Chicago, Ill
Taylor Co., N. & G., Philadelphia, Pa
Wheeling Corrugating Co., Wheeling, W. Va

Roofing Cement

Auld & Conger Co., Cleveland, O
Connors Paint Mfg. Co., The Wm., Troy, N. Y

Roof Paint

Dixon, Jos. Crucible Co., Jersey City, N. J

Rope—Wire

American Steel & Wire Co., Chicago, Il

Rules

Lufkin Rule Co., Saginaw, Mich

Saw Sets and Saws

Disston, Henry & Sons, Philadelphia, Pa
Smith & Hemenway Co., New York, N. Y

Scales

Osgood Scale Co., Binghamton, N. Y

Schools—For Sheet Metal Pattern Drafting

Gray's School, New York, N. Y

Screens—Perforated Metal

Harrington & King Perforating Co., Chicago, Ill

Screws

Columbus Bolt Works, Columbus, O

Screw Drivers

North Bros. Mfg. Co., Philadelphia, Pa

Shears

Bertsch & Co., Cambridge City, Ind
Napanee Iron Works, Napanee, Ind
Robinson Mfg. Co., J. M., Cincinnati, O
Wagner, C. DeWitt, Cedar Rapids, Ia

Sheets—Black and Galvanized

American Sheet & Tin Plate Co., Pittsburgh, Pa
Eller Mfg. Co., Canton, O
Griffiths Charcoal Iron Mills, Washington, Pa
Inland Steel Co., Chicago, Ill
Stark Rolling Mill Co., Canton, O
Sykes Steel Roofing Co., Chicago, Ill
Taylor Co., N. & G., Philadelphia, Pa
Wheeling Corrugating Co., Wheeling, W. Va

Sheets—Planished

American Sheet & Tin Plate Co., Pittsburgh, Pa
Eller Mfg. Co., Canton, O
Follansbee Bros., Pittsburgh, Pa
Griffiths Charcoal Iron Mills, Washington, Pa
Inland Steel Co., Chicago, Ill
Stark Rolling Mill Co., Canton, O
Sykes Steel Roofing Co., Chicago, Ill
Taylor Co., N. & G., Philadelphia, Pa
Ward-Dickey Steel Co., Indiana Harbor, Ind

Sheets—Steel

American Sheet & Tin Plate Co., Pittsburgh, Pa
American Steel & Wire Co., Chicago, Ill
Eller Mfg. Co., Canton, O
Follansbee Bros. Co., Pittsburgh, Pa
Griffiths Charcoal Iron Mills, Washington, Pa
Inland Steel Co., Chicago, Ill
Stark Rolling Mill Co., Canton, O
Sykes Steel Roofing Co., Chicago, Ill
Taylor Co., N. & G., Philadelphia, Pa

Sheet Metal Ornaments

Berger Mfg. Co., Canton, O
Foster & Sons Co., Wm., Springfield, Ill
Friedley-Voshardt Co., Chicago, Ill
Milwaukee Corrugating Co., Milwaukee, Wis
Mullins Co., W. H., Salem, O
Schoedinger, F. O., Columbus, O

Sheet Metal Patterns

Gray's School, New York, N. Y

Shelf Boxes

Green & Co., A. H. New York, N. Y

Shelving

Heller & Co., W. B., Montpelier, O
Warren Mfg. Co., J. D., Chicago, Ill

Shovels

Avery Stamping Co., Cleveland, O

Siding

Foster & Sons Co., Wm. Springfield, Ill
Milwaukee Corrugating Co., Milwaukee, Wis

Slitters

Stuber & Kuck, Peoria, Ill

Skylights

Canton Art Metal Co., Canton, O
Eller Mfg. Co., Canton, O
Milwaukee Corrugating Co., Milwaukee, Wis

Skylight Gearing

Weiss, H. & Co., New York, N. Y

Slate Roofing

Auld & Conger Co., Cleveland, O

Slating Nails

Hussey & Co., C. G., Pittsburgh, Pa

Soldering Fluxes

Ruby Chemical Co., Johnston, Ohio

Squares—Machinists'

Disston, Henry & Sons, Philadelphia, Pa

Stampings—Sheet Metal

Avery Stamping Co., Cleveland, O

Steel

American Steel & Wire Co., Chicago, Il

Store Fixtures

Heller & Co., W. B., Montpelier, O

Stoves and Ranges

Albany Foundry Co., Albany, N. Y
Born Steel Range Co., Cleveland, O
Champion Steel Range Co., Cleveland, O
Chicago Stove Works, Chicago, Ill
Comstock-Castle Stove Co., Quincy, Ill
Co-operative Fdy Co., Rochester, N. Y
Chicago, Ill
Danville Stove & Range Co., Danville, Pa
Faultless Malleable Stove Works, St. Charles, Ill
Foster Stove Co., Ironton, O
Germer Stove Co., Erie, Pa
Monitor Stove & Range Co., Cincinnati, O
Mt. Penn Stove Works, Reading, Pa
Quality Stove & Range Co., Belleville, Ill
Ringen Stove Co., St. Louis, Mo
South Erie Iron Works, Erie, Pa
Stove & Range Co., of Pittsburgh, Pittsburgh, Pa
Travilla, M., Quincy, Ill
Van Range Co., John, Cincinnati, O
Willard, Wm. G., St. Louis, Mo

Stove Mats

Stuber & Kuck, Peoria, Ill

Stove Patterns

Cleveland Castings Pattern Co., Cleveland, O
Cope Pattern, Geo W., Works, Detroit, Mich
Quincy Pattern Co., Quincy, Ill
Vedder Pattern Works, Troy, N. Y
Weller Pattern Co., Quincy, Ill

Stove Pipe

Excelsior Steel Furnace Co., Chicago, Ill
Hemp & Co., St. Louis, Mo
Kinne Mfg. Co., Minneapolis, Minn

Stove Pipe Joints

Kinne Mfg. Co., Minneapolis, Minn

Stove Pipe Thimbles

Stuber & Kuck, Peoria, Ill

Stove Polish

Black Silk Stove Polish Wks., Sterling, Ill
Brauer Supply Co., A. G., St. Louis, Mo
Nickel Plate Stove Polish Co., Chicago, Ill

Stove Putty

Connors Paint Mfg. Co., Wm., Troy, N. Y
Dixon, Jos. Crucible Co., Jersey City, N. J

Stove Repairs

Brauer, A. G., Supply Co., St. Louis, Mo.
U. S. Stove Repair Co., Minneapolis, Minn

Sugar Kettles

Sperry, D. R. Co., Batavia, Ill

Supplies—Stove Dealers'

Brauer, A. G., Supply Co., St. Louis, Mo

Tacks—Carpet

American Steel & Wire Co., Chicago, Ill

Tapes

Lufkin Rule Co., Saginaw, Mich

Technologist

Hooper, C. N., Dubuque, Iowa

Telephone Wire

American Steel & Wire Co., Chicago, Ill

Thermometers—Oven

Evans Stamping & Plating Co., Taunton, Mass

Tin—Perforated

Harrington & King Perforating Co., Chicago, Ill

Tinners' Furnaces

Burgess Soldering Furnace Co., Columbus, Ohio
Clayton & Lambert Mfg. Co., Detroit, Mich
Diener Mfg. Co., Geo. W., Chicago, Ill
Meyer Fdy. & Mfg. Co., South Bend, Ind
Ringen Stove Co., St. Louis, Mo

Tinners' Tools

Armstrong, Blum Mfg. Co., Chicago, Ill
Auld & Conger Co., Cleveland, O
Berger Bros. Co., Philadelphia, Pa
Bertsch & Co., Cambridge City, Ind
Lufkin Rule Co., Saginaw, Mich
Napanee Iron Works, Napanee, Ind
Niagara Machine & Tool Works, Buffalo, N. Y
Robinson Mfg. Co., J. M., Cincinnati, O
Wagner, C. DeWitt, Cedar Rapids, Ia
Weiss & Co., H., New York, N. Y

Tinplate

American Sheet & Tin Plate Co., Pittsburgh, Pa
Eller Mfg. Co., Canton, O
Follansbee Bros. Co., Pittsburgh, Pa
Merchant & Evans Co., Philadelphia, Pa
Wheeling Corrugating Co., Wheeling, W. Va

Tinware Trimmings

Berger Bros. Co., Philadelphia, Pa

Toasters

Kinne Mfg. Co., Minneapolis, Minn

Tools, etc.

North Bros. Mfg. Co., Philadelphia, Pa
Parker Co., Chas., Meriden, Conn
New York, N. Y
Rock Island Tool Co., Rock Island, Ill
Stanley Rule & Level Co., New Britain, Conn

Tools—See Carpenters' Tools
Tools—Linemen's

Smith & Hemenway Co., New York, N. Y

Torches

Clayton & Lambert Mfg. Co., Detriot, Mich

Trowels

Avery Stamping Co., Cleveland, O
Disston, H. & Sons, Inc., Philadelphia, Pa
Griffin Mfg. Co., Erie, Pa

Tubing—Heavy Tin

Dieckmann, Ferdinand, Cincinnati, O

Ventilators—Wooden

Wooden Ventilator Co., The, East Palestine, O

Ventilators

Canton Art Metal Co., Canton, O
Canton Mfg. Co., Canton, O
Eller Mfg. Co., Canton, O
Friedley & Voshardt Co., Chicago, Ill
Globe Ventilator Co., Troy, N. Y
Iwan Mfg. Co., South Bend, Ind
Merchant & Evans Co., Philadelphia, Pa
Milwaukee Corrugating Co., Milwaukee, Wis

Vises

Parker Co., Chas., Meriden, Conn
New York, N. Y
Rock Island Tool Co., Rock Island, Ill

Washers

Columbus Bolt Works, Columbus, O

Washing Machines

Brammer Mfg. Co., H. F., Davenport, Ia
White Lily Mfg. Co., Davenport, Ia

Wire

American Steel & Wire Co., Chicago, Ill

Wire Goods

Denning Wire & Fence Co., Cedar Rapids, Ia
Pittsburg Steel Co., Pittsburgh, Pa

Wringers

Lovell Mfg. Co., Erie, Pa

Wants and Sales

For Paid Yearly subscribers THE AMERICAN ARTISAN will insert under this head advertisements of six lines WITHOUT CHARGE for employers wishing to secure employes, persons seeking situations, parties desiring to purchase a business, business for sale, partners wanted, to exchange, etc. Those who respond to these announcements will please mention that they "READ THE ADVERTISEMENT IN THE AMERICAN ARTISAN."

BUSINESS CHANCES.

PATENTS OFFICIAL copy "PATENT LAWS" United States sent on receipt ten cents stamps.
HUBERT E. PECK, Patent Attorney, 629 F Street, Washington, D. C.

Wanted—Stock of hardware for a good 80-acre farm in the corn belt of Illinois. Give amount of stock in first letter and size of place. Address S-71, care THE AMERICAN ARTISAN, 355 Dearborn St., Chicago. 7-3t

For Sale—Heating, plumbing and tin shop in one of the best towns in Iowa or will take in a partner. Address S-70, care THE AMERICAN ARTISAN, 355 Dearborn St., Chicago. 7-3t

For Sale—My stock of hardware, stoves, nails, oils, paints, tin shop tools and plumbers' tools; also barbed wire fencing, all in good shape. In state of Illinois; the only stock of the kind in the town. Good opening for some one. Address S-62, THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-3t

For Sale—Tinshop in town of 6,000. Complete set of tools and stock on hand. Only two shops that do outside work. Bargain if taken Sept. 1st. Address S-67, THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-3t

For Sale or Trade—One-half or all of a good, clean stock of general hardware; or would trade for a smaller stock and building, in a country town. Good reasons for selling. Address S-65, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-3t

Hardware Manufacturers' Agent calling on wholesale trade in Middle West wants to add one good account to present lines. Long experience. Best references. High-class representation. Moderate cost. Address S-64, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-3t

Wanted—Experienced light agents to sell on salary or commission; commission preferred. F. P. preferred. Liberal commission and large territory. Established business, well advertised. Only salesmen with salesmanship ability need apply. Give experience and references. H. F. Strehlow, Casselton, No. Dak., Gen'l Distributor for N. Dak., W. Minn. and E. Montana. 6-ufn

For Sale—Four thousand pounds standard binder twine; price 6½c per pound, net, cash. 1909 make. M. Reinhardt's Sons, Lincoln, Ill. 6-3t

Wanted—Stock of hardware for good, productive, improved Texas corn farm. I have a good farm at honest value. Address S-53, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-3t

For Sale—The only cornice shop in city of 20,000 inhabitants. Well established business. Tools and stock invoice about $700. Terms, part cash and liberal time to right party. Address Joplin Cornice Works, Joplin, Mo. 6-3t

For Sale—First-class stock of hardware and tin shop in connection, in city of 45,000 in the state of Illinois. Stock, tinner's tools and fixtures will invoice about $10,000. If you are interested, please investigate. Address S-69, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-3t

For Sale—One No. 5 latest improved Oliver typewriter, one pair of warehouse trucks, one pair of Fairbanks platform scales, one only 20-inch P. S. & W. tin folder, one only 17-inch grooving machine, one stovepipe folder, 30 inches. Address M. V. Brickey, Rankin, Ill. 5-3t

Wanted—Manufacturers' line. Manufacturers' agency calling on the Michigan hardware jobbing trade open for a good specialty line. Commission. Address W. W., Box 205, Detroit, Michigan. 5-3t

For Sale — Old established hardware business, making money in central Wisconsin. Population of town, 1,000; stock, $7,500; large territory. Can rent building. Only two hardware stores in town. Plenty of work at good prices. Bargain for some one. Reason for selling, going west. Address S-53, care THE AMERICAN ARTISAN, 355 Dearborn St., Chicago. 4-3t

For Sale—Hardware stock of about $7,000; only hardware stock in town of over 1,000; good location and good business. Address S-57, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Illinois. 5-3t

For Sale—Plumbing and heating shop for sale; a bargain for a hustler; can get all the work you can handle at good cash prices; good reasons for wanting to sell. 70 miles from Chicago. Address S-59, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill.

TINNER'S TOOLS.

For Sale—One Peck Stow & Wilcox geared stove pipe crimper, good as new; one Adams stove pipe mandrel in good condition. Address O. T. Higgins & Co., Francesville, Indiana. 7-2t

For Sale—One Wright's patent sheet iron folder, 30", and one Newton's circular shear. Will sell cheap. Both in fair condition. Address Gag & Ranweiler, New Ulm, Minnesota. 7-3t

For Sale—Set tinner's tools in first-class condition; also No. 2 Oliver typewriter and new Mimeograph. Will trade for slitting shear, lever punch or phonograph. Address F. B. Karl, Delaware, Ohio. 6-3t

For Sale—A full set of tinner's tools and machines; cheap. Address O. J. Surum, Warren, Illinois. 5-3t

Wanted—One 30 or 36-inch squaring shear, must be in good condition and cheap for cash. Address H. H., Lock Box 87, Shannon City, Iowa. 5-3t

Wanted—One 20-inch bar folder. Must be in first-class order. State price. Address Box 28, Albany, Ind. 5-3t

HELP WANTED.

Wanted, Tinner and Furnace Man—Steady work and good wages to right man. Address Edson Smith & Sons, Elmwood, Illinois. 7-3t

Wanted—First-class tinner capable of taking charge of shop, on salary and commission. Send references with salary desired. Address Swinehart Hardware Co., Clinton, Indiana. 7-2t

Wanted, at Once—First-class tinner or plumber. Must be a hustler and good mechanic. Address F. C. Rammer, Cedar Falls, Iowa. 7-3t

Wanted—Good steady clerk for hardware store. None but experienced man need apply. Address McGuire Brothers, Rockford, Illinois. 7-3t

Wanted—Young man to clerk in hardware store. Must be able to keep store and stock in order and wait on trade. State wages wanted. Address A. H. Henning, Algonquin, Ill. 6-1t

Wanted—Good all 'round tinner; one that can do all kinds of work that usually comes to a country shop; also furnace work, in good lively town in southern Wisconsin. None but sober, reliable men need apply. State wages and give reference in first letter. Address S-68, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-3t

Wanted—A young man to act as stenographer and assistant bookkeeper in our office. Must be able and willing to do collecting and assist in store when not otherwise employed. Do not apply unless you are willing to work. J. C. Lewis Company, Antigo, Wis. 6-3t

Wanted—Stove pattern fitter and two stove mounters. Address Bonnot-Nance Stove Company, Chicago Heights, Ill. 6-3t

Wanted—A1 tinner and all around man for city of 10,000 population in Ohio. One who can meet the trade and act as foreman; able to go out and solicit business, etc., with fair education, honest, sober and one who can see that the work is gotten out with profit. Married man preferred. Address S-56, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 5-3t

Wanted—First-class foreman for cornice and metal windows; must be a good draftsman. Address Green Bay Cornice & Corrugating Co., Green Bay, Wisconsin. 5-ufn

Salesman Wanted—Calling on the hardware trade, can learn of a profitable and easy selling side line, the sale for which will be heavy during the next four months, by addressing S-51, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Illinois. 5-4t

SITUATIONS WANTED.

Situation Wanted—As hardware clerk or can do bookkeeping, also understand tinwork, such as roofing, furnace and general job work. Twenty years' experience. Age 50, married. Owing to age I would prefer clerking or bookkeeping, but would not object to helping in shop. State wages you can pay in first letter. Address G. J. Sturm, Flora, Illinois. 7-3t

Wanted, Position—By September 1st by first-class tinner and furnace man and plumber, 18 years' experience, married and no booser. Must be steady work. Would prefer west or middle west. Address E. M. True, Box 96, Severance, Kansas. 7-3t

Situation Wanted—As hardware clerk by strictly temperate young man, aged 25. Four years' experience. Can furnish best of references. Ambitious, hard worker, with ability to sell goods and make friends. Address Floyd Brummett, Bardwell, Ky. 6-3t

Would like to hear from dealers desiring a first-class furnace man, accustomed to steam and hot water work; would like position for 30, 60 or 90 days, or long enough to install one furnace. Address Box 733, West Union, Iowa.

Situation Wanted—As hardware clerk. Have had six years' experience as manager of stock of $8,000. Have worked at the trade for 16 years. City of 3,000 or over preferred. Address S-66, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 6-2t

Wanted—Position by first-class plumber, steamfitter and tinner. First-class at all three trades. Would like place by September 1st. Nothing less than $21.00 per week considered. Address S-55, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 5-3t

Wanted—By an experienced tinner, hot air and steel ceiling man, of good habits, position. Nothing but a yearly position considered. Willing to start by the 15th of August. Not particular as to location. State wages in first letter. Address Dan Yutzy, Hotel Blair, Wauseon, Ohio. 5-3t

Situation Wanted—By tinner and furnace man; can do ordinary plumbing, steam and hot water heating. Am married, sober and reliable. Job must be steady year round. Small town preferred. State wages and particulars in first letter. Address Tinner, Box 36, Viola, Wisconsin. 5-3t

Situation Wanted—All around tinner, sheet metal worker and furnace man wants steady position in either city or country at reasonable wages. Good hardware man and salesman. Address S-58, care of THE AMERICAN ARTISAN, 355 Dearborn St., Chicago, Ill. 5-3t

Situation Wanted — By tinner with twelve years' experience. Good at all kinds of work. Good sheet metal worker. Steady job. Illinois preferred. Correspondence solicited. Address Tinner, 227 South First St., West, Cedar Rapids, Iowa. 4-ufn

SPECIAL NOTICES.

SALESMAN WANTED.

Wanted experienced stove salesman for well known line of ranges and heaters. State experience, territory and salary expected. We are looking for salesman who can deliver the goods. Position open Jan. 1st, 1910. All communications strictly confidential. Address W. 26, care THE AMERICAN ARTISAN, 355 Dearborn Street, Chicago, Ill. 1-ufn

SALEMAN WANTED

An "Isser" to sell a factory line of builders' hardware in Central States. Address Hardware, room 411-134 E. Lake St., Chicago. 7-1t

SPECIAL NOTICES.

FOR SALE

Valuable patent and business. Over 100 per cent profit. Sell to jobbers and tinners; wide awake man can make $5,000 a year; ill health reason for selling. Address, 45 Frost Ave., Rochester, New York. 7-1t

WANTED

Sheet iron worker that understands steel ranges, gas ranges and gas heaters. Give experience and salary wanted to take charge of shop. Address W-38, care THE AMERICAN ARTISAN, 355 Dearborn St., Chicago. 7-1t

WANTED

Competent man to handle full line of gas heaters and gas water heaters on a commission basis. Can offer some good territory in the west. Address Gas Appliance, care THE AMERICAN ARTISAN, 355 Dearborn St., Chicago. 7-4t

WANTED

By large stove and furnace manufacturing company, first-class mounting room foreman. One familiar with hot air furnaces, coal and gas range work; must be sober and a hustler. Address, giving experience, age and salary expected W-39, care THE AMERICAN ARTISAN, 355 Dearborn St., Chicago. 7-1t

GAS RANGE SALESMEN

wanted by one of foremost concerns in country making large and well known trade-mark line. Men of experience preferred. Salary limited by ability only. Splendid chance for advancement. No first-class man can afford to let this chance pass. Address, W-37, care THE AMERICAN ARTISAN, 355 Dearborn St., Chicago. 7-4t

WANTED
FOUR STOVE SALESMEN

Who can control business with a high grade Trade Mark line in following territories: Northern Indiana, Northern Illinois and Southern Wisconsin, Northern Iowa, Southern Minnesota We want only men who can earn $2,500, or better. Employment now or Nov. 1st. Give full particulars in confidence. Address W 35, care THE AMERICAN ARTISAN, 355 Dearborn Street, Chicago, 6-8t.

WANTED

Operator for 10 ft. power cornice brake. State experience and compensation expected. Address Stark Rolling Mill Co., Canton, Ohio. 4-4t

Identify Your Name With Quality
by the Use of
Black Silk Stove Polish
5-lb. cans for dealers' use. Domestic packages for retailing
Liquid and Paste—One Quality
BUY THROUGH YOUR JOBBER
BLACK SILK STOVE POLISH WORKS, Sterling, Ill.

STOVE SALESMEN WANTED

for Iowa, Minnesota and Dakota; also one for Chicago and suburban trade. One with an established trade preferred. Address, W-36, care THE AMERICAN ARTISAN 355 Dearborn St., Chicago. 7-3t

WANTED

First-class Tin Ware salesmen to cover Nebraska, Kansas, Missouri, and Oklahoma. Must be able to produce results. Address, P. O. Box 1048, Rochester, New York. 5-4t

Salesmen Wanted

The Martin Manufacturing Co. of Mason City, Iowa, makers of the very highest classes of sheet metal goods, consisting of a complete line of tin ware, galvanized iron ware, copper nickel plated ware, and three colors in enamel steel ware, have an opening for a few first class experienced tin and enamel ware salesmen. This is a splendid opportunity for a salesman who has the ability to secure a good position. Address all orders or communications to Martin Manufacturing Company, Mason City, Iowa. 23-ufn

STOVE SALESMAN

WANTED—A stove salesman for Texas. One who is familiar with the territory preferred. Address at once, stating experience and qualifications, Detroit Stove Works, Chicago, Ill. 4-ufn

It Will Pay You

to illustrate your advertisements in your local papers. A sheet of comic advertising cuts sent on application

These cuts are furnished with catchlines showing their application to the hardware, stove and tinners' trades.

Address
DANIEL STERN
355 Dearborn St., - CHICAGO

DIXON'S PIPE-JOINT COMPOUND
for all screw and flange connections. Makes thoroughly tight joints, but allows the joints to be unmade at any time without damage to tools or fittings. Write for free sample.
JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J.

Every Retailer

should secure a copy of

THE AMERICAN ARTISAN ADVERTISING MANUAL

Experts agree that it is a book of inestimable value to those who wish to prepare advertisements that will bring results.

Read their opinions as given below:

From "DOMESTIC ENGINEERING," Chicago

"The book is of undoubted worth as an aid to the retail merchant in preparing that desirable but illusive style of advertising copy known as "printed persuasion."

From "NATIONAL HARNESS REVIEW," Chicago.

"Its pages teem with salient points concerning texts, typographical displays and other essentials which go into the make-up of a business getting announcement."

From "PRESTO," Chicago.

"It would be impossible to estimate the value of the book to hardware merchants."

From "TRADE," Detroit, Mich.

"This book is thoroughly practical."

From "THE BUFFALO EXPRESS," Buffalo, N. Y.

"It contains many reproductions of successful advertisements."

From "THE WEEKLY IMPLEMENT TRADE JOURNAL," Kansas City, Mo.

"It is a reproduction of the retailers advertisements and criticisms of same."

From "FARM IMPLEMENT NEWS," Chicago.

"It is a compilation of all kinds of display advertisements as they actually appeared in different newspapers."

From "THE HOUSE FURNISHING REVIEW," New York.

"This book is useful to the ad man."

From F. R. SWITZER CO., "SUCCESSFUL ADVERTISING," Utica, N. Y.

"We have glanced through THE AMERICAN ARTISAN ADVERTISING MANUAL, and it certainly ought to be of considerable interest to the retail hardware trade, and we think you deserve considerable credit for the undertaking."

From "THE THRESHERMEN'S REVIEW," St. Joseph, Mich.

"A very effective monitor of retail advertising." "It should be a very valuable book for the dealer who wants newest ideas and best methods of expression in ad writing."

From "HARDWARE," New York.

"The book is a practical help for hardware dealers."

From "STOVES AND HARDWARE REPORTER," St. Louis, Mo.

"A fund of information on the subject of advertising calculated to enable the retail dealers to obtain the best results from newspaper advertising."

From "THE METAL WORKER," New York.

"THE ADVERTISING MANUAL will be found of assistance to stove dealers, sheet metal workers, plumbers, hardware men and all who seek to extend their business by advertising."

From "THE TRADESMEN," Chattanooga, Tenn.

"If the average hardware or stove dealer, to whom this book should prove of especial benefit, had some assistance in the preparation of his advertising copy, he would be able to prepare advertisements at all times that would be of the business getting kind."

It should have a place in every store.

Improve your advertising, Mr. Dealer. THE AMERICAN ARTISAN ADVERTISING MANUAL will aid you. Secure a copy to-day.

The book retails at $3.50, and it can be obtained from your bookseller or from

DANIEL STERN

PUBLISHER

355 Dearborn Street, Chicago

THE RIGHT KIND
of Oven Thermometer is

THE "ACME"

THE "ACME"

MADE BY EVANS STAMPING AND PLATING COMPANY TAUNTON, MASS.
Western Agent, C. H. MATTHEWS, Detroit, Mich.

MICA STOVE POLISH

A. G. Brauer Supply Co
316-318 N. THIRD ST.
St. Louis, Missouri.

FURNACE REPAIRS CHIMNEY TOPS

REPAIRS
TO FIT ALL STOVES AND FURNACES
PROMPT SHIPMENTS ASK FOR ORDER BLANKS
U. S. STOVE REPAIR COMPANY
13-15 South Third St., Minneapolis, Minn.

PEERLESS ENAMEL
ASK YOUR JOBBER
GLOSS BLACK FOR STOVE PIPES AND ALL IRON WORK
ALUMINUM FOR RADIATORS PIPES, ETC.
WRITE FOR SAMPLE
NICKEL PLATE STOVE POLISH CO., MFRS.
CHICAGO

SPERRY'S SUGAR KETTLES

Light, smooth, full measure and guaranteed perfect. Made from original patterns. Metal, the right kind in the right place. Ask your jobber for them or write us.

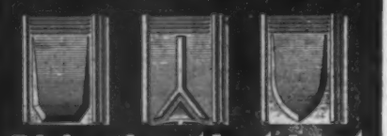
D. R. SPERRY & CO. HOLLOW-WARE FOUNDERS Batavia, Ill.

To THE AMERICAN ARTISAN: Jan. 22, 1909.

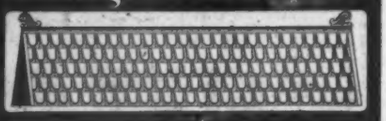
Up to date I have twenty-one letters from tinners answering my ad in your hardware journal and I think out of this lot with more to come, no doubt, I will be able to select a man. So please do not publish notice any longer and oblige.

J. C. Tanner.
Falls City, Nebraska.

WALTERS'



Shingles that last



Made from Galvanized Tin and Painted Tin
Storm, Rust and Fire Proof
Do you want to increase your business? This is your opportunity. Write for catalogue, samples and prices.
National Sheet Metal Roofing Co.
JERSEY CITY, N. J.

WRITE FOR PRICES on
ROOFING SLATE
THE AULD & CONGER CO.
Manufacturers and Dealers
999 Prospect Street
CLEVELAND, OHIO

QUINCY PATTERN CO
IRON & WOOD
STOVE PATTERNS
QUINCY, ILL.

PATTERNS
For Stoves and Heaters
First-Class in Wood and Iron
Vedder Pattern Works, Troy, N. Y.
Established 1835

PATTERNS
For Stoves and Heaters
The Cleveland Castings Pattern Co.
CLEVELAND, OHIO

WELLER PATTERN CO
DESIGNS and ESTIMATES FURNISHED FOR ALL KINDS OF STOVE PATTERNS
QUINCY, ILL.

THE Geo. W. Cope STOVE Cor. Brush and Woodbridge Streets
PATTERN
DETROIT WORKS MICHIGAN

SCHOEDINGER'S

"Invincible Lock Joint"
REGISTERED—U.S. PAT. OFFICE

METAL CEILINGS

A Perfect Lock Joint. So simple the most inexperienced workman can erect it, yet so secure that the ceiling becomes as one solid sheet. Requires no special tools and no extra work —when erected, it is finished.

Not only saves labor and material, but makes the finest appearing ceiling to be had. No unsightly seams to catch dust, no slip joints to come apart, but the only real Lock Joint on the market.

WRITE FOR FURTHER INFORMATION WITH PRICES.

F. O. SCHOEDINGER, Columbus, Ohio
Dept. 3 146 N. Third Street 148

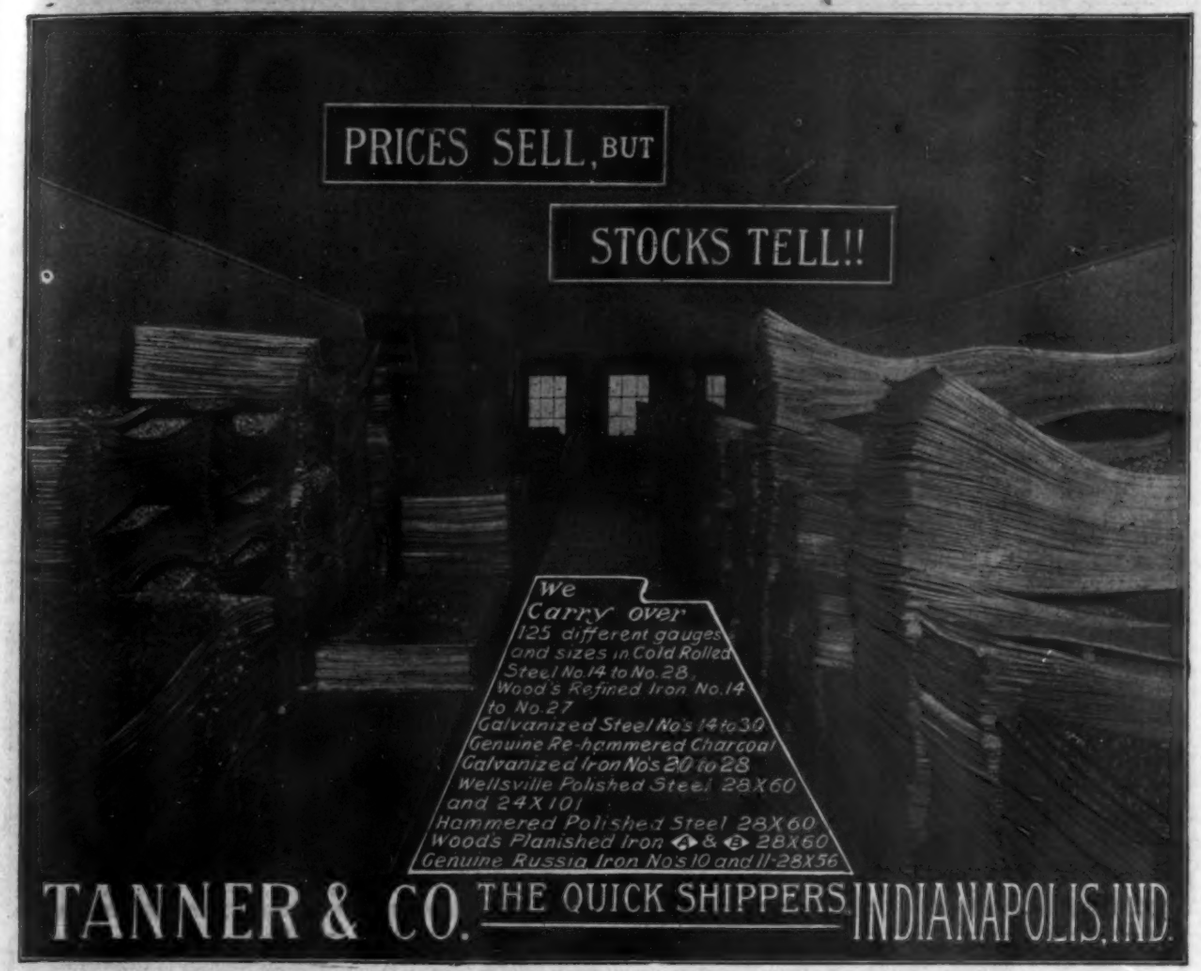
ARTISTIC METAL CEILINGS
AND SIDE WALLS.

Our ceilings are made from the best quality sheet metal and are admittedly the most accurate and economical made. We offer the largest variety and most beautiful designs on the market and our patterns are new and original, admitting of the highest degree of ornamentation.

We are the only manufacturers of metal ceiling who cut the beads in the dies after they are cast at the foundry. This means absolutely perfect joints and a saving in the cost of erection.

WRITE TO-DAY FOR OUR

BEAUTIFUL ART CATALOGUE "A"


PRICES SELL, BUT
STOCKS TELL!!
We Carry over 125 different gauges and sizes in Cold Rolled Steel No. 14 to No. 28, Wood's Refined Iron No. 14 to No. 27
Galvanized Steel Nos 14 to 30
Genuine Re-hammered Charcoal Galvanized Iron Nos 20 to 28
Wellsville Polished Steel 28X60 and 24X101
Hammered Polished Steel 28X60
Wood's Planished Iron A & B 28X60
Genuine Russia Iron Nos 10 and 11-28X56
TANNER & CO. THE QUICK SHIPPERS INDIANAPOLIS, IND.

No 27
DICKEY
PLANISHED
SHEET STEEL
MANUFACTURED BY
WARD-DICKEY STEEL CO
INDIANA HARBOR IND
290 33 257
THIS SIDE UP

"THE BEST EVER USED"

writes one of our patrons.

Others endorse our goods with the following declarations:

"My customers give your make the preference over all others."

"On a difficult shape, we tried 80 pieces of another make, and all but two broke. We made 300 of same shape from your goods and not one broke."

Booklet sent on request.

EXTRA SOFT
INLAND
OPEN HEARTH

INLAND STEEL CO.
CHICAGO

Pure Open Hearth Sheet Steel

Galvanized—Perfectly coated—will not peel.

Black—Blue Annealed and Box Annealed.

Roofing—Painted and Galvanized—all kinds.

Use this brand and you will continue to do so.

Write for Catalogue.

THAT PAPER IS THE CHEAPEST WHICH BRINGS THE BEST RESULTS IN PROPORTION TO ITS RATE, NO MATTER WHAT THAT RATE MAY BE.

SHEETS
BLACK or Galvanized

If you want to
Keep up to the times
Get Particulars of TONCAN METAL—*NOW!*

DON'T be the last one to take hold of a good thing. Your *customers* want it. *YOU* need it. And, both you and your customers will appreciate the results it gives.

RUST-RESISTING
DUCTILE
DURABLE
ECONOMICAL

Prices from your Jobber
or
THE STARK ROLLING MILL COMPANY
CANTON, - - Ohio

AMERICAN BESSEMER | BLUE ANNEALED | APOLLO GALVANIZED

SHEET STEEL

We can furnish promptly Corrugated Iron and Steel Sheets, Painted and Galvanized

TRY US ASSORTMENT COMPLETE PRICES LOW

THE BASSETT-PRESLEY COMPANY
CLEVELAND, OHIO

GRIFFITHS GENUINE CHARCOAL IRON ROOFING PLATES
GRIFFITHS GENUINE GALVANIZED SHEETS

KNOBBLING FIRE

The same base material that was made thirty years ago. Nothing but Charcoal Iron rolled into Tin Plate and Sheet Iron at the

GRIFFITHS CHARCOAL IRON MILLS

Knobbling fires, hammers, bar mill and finishing mills at

WASHINGTON, PA.

RIDGE TILE AND FINIAL

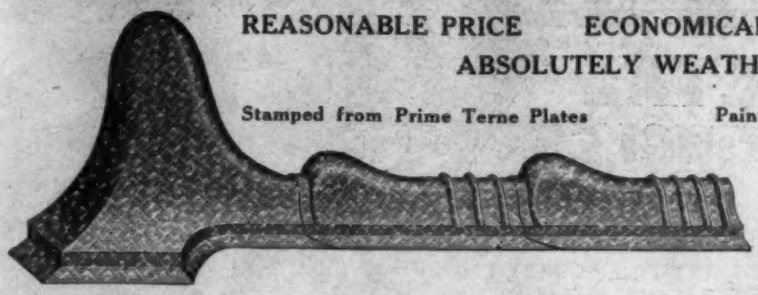
ORNAMENTAL ROOF FINISH

REASONABLE PRICE ECONOMICAL TIGHT STIFF JOINTS

ABSOLUTELY WEATHER PROOF

Stamped from Prime Terne Plates

Painted and Galvanized After Stamping

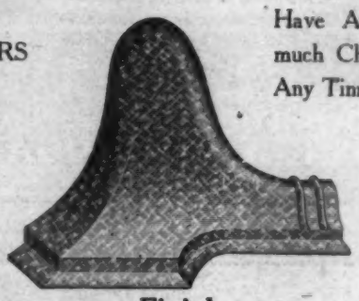


WILL LAST AS LONG AS THE BUILDING ITSELF

THEIR SHORT LENGTH RENDERS THEM EASILY HANDLED AND TRANSPORTED

Have Appearance of Earthen Tile. Are much Cheaper, and not liable to Breakage. Any Tinner can Apply them Properly.

Tile



Finial

For Further Information and Prices, Write

WHEELING CORRUGATING COMPANY

WHEELING, - W. VA.

BRANCH OFFICES AND WAREHOUSES:

BOSTON, MASS. CHICAGO, ILL. PHILADELPHIA, PA.

CHATTANOOGA, TENN. NEW YORK CITY ST. LOUIS, MO.

LOOKING for RESULTS

That's what this man got.

Read his letter

Cambridge, Ill.
Sept. 17, 1907.

THE AMERICAN ARTISAN
Chicago

Gents—

Please discontinue want ad. as I engaged a man through your columns.

Thanking you for same,
A. J. ROSS.

HOW ABOUT THE ROOF?

Is your roof to be a source of protection to your building, an economy in your expense account and a lasting satisfaction? If it is—

MF

32 POUNDS COATING

ROOFING TIN

is the roofing you will use—for it combines utility and reliability and has given results during the past half-century that stamp it as the best all around roofing you can use. A sample for your inspection and testing is free for the asking.

AMERICAN SHEET AND TIN PLATE COMPANY

FRICK BUILDING PITTSBURGH, PA.

Plecker's *Corrugated* Expanding *Conductors*

Have no Cross Seams. Made of Galvanized Iron in ten-foot lengths.

Will not burst when full of ice

CLARK, QUIEN & MORSE, PEORIA, ILL.

"TITELOCK"

PAINTED TIN SHINGLES ARE SUPERIOR TO WOOD
GALVANIZED SHINGLES ARE SUPERIOR TO SLATE
COPPER SHINGLES ARE SUPERIOR TO TILE

SEND FOR SAMPLES AND BOOKLET

MILWAUKEE CORRUGATING CO.

MILWAUKEE WIS. CHICAGO, 89 EAST LAKE ST. KANSAS CITY, MO.

LIGHTNING FIRE AND WATER PROOF

THE CANTON ART METAL COMPANY

CANTON, OHIO

MAKERS OF

Black and Galvanized Sheets
Cornice and Skylights
Eaves Trough and Conductor Pipe
Roofing and Tin Plate
Metal Shingles and Siding
Metal Ceilings and Side Walls

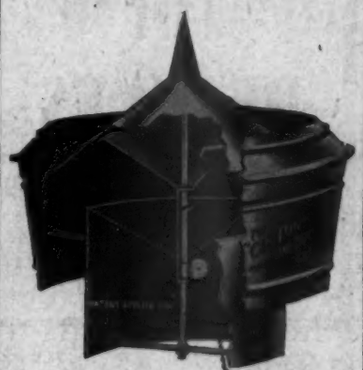
Send for Catalogue

Eastern Branch,
525 W. 23rd Street
NEW YORK CITY

Western Branch,
206 South Third Street
MINNEAPOLIS, MINN.

Standard Metal Shingles

The Canton Ventilator



Made with Metal and Glass Tops and with and without Automatic closing device.

THE CANTON MFG. CO.
CANTON, OHIO
Makers of
Cornice, Skylights, Metal Ceilings, Eaves Trough, Conductor Pipe, Etc.

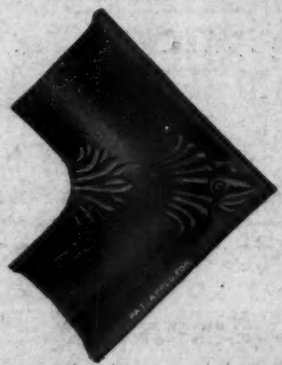
The F.-V. Co. Ornamental One-piece Mitre

THE FINEST ONE-PIECE MITRE ON THE MARKET

—

ORNAMENTAL
DURABLE
CHEAP

Write for Prices and Samples



Friedley-Voshardt Co., 194-204 Mather Street, **Chicago**

YOU

Need a Tinner, Furnace Man or Hardware Clerk? A want ad in

THE AMERICAN ARTISAN

That's all that's necessary to solve the problem.

Thousands of Designs

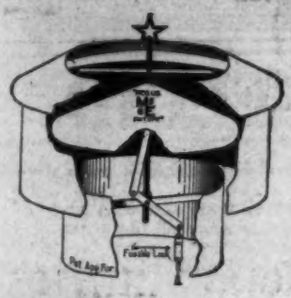
Immense stock of Stamped Zinc Architectural Ornaments for Cornice Makers and the Building Trades ready for immediate shipment at attractive prices.

If you haven't a copy of our large ornamental catalog No. 9-H, notify us and we will send you a copy at once.

THE W. H. MULLINS COMPANY

Manufacturers of
Architectural Sheet Metal Work, Statuary, Fireproof Windows and Skylights.

209 FRANKLIN STREET. SALEM, OHIO.



The "STAR" VENTILATOR

AND

The FIRE RETARDING "STAR" VENTILATOR and DAMPER COMBINED

Embody everything in the Best Scientific Storm Proof Ventilator.

MERCHANT'S METAL "SPANISH" TILES and "GOTHIC" SHINGLES.

These Tiles and Shingles have proved meritorious for years. They are in demand where ornamentation is essential. Also Lightness and Durability are special features of merit.

Write for Booklets.

"Reg. in U. S. M & E Pat. Off."

Merchant & Evans Co.

Sole Manufacturers

KANSAS CITY PHILADELPHIA NEW YORK BROOKLYN BALTIMORE CHICAGO DENVER

One Piece of Metal. Any Desired Angle.
Save Expense in Erecting.

Dieckmann's Conductor Elbows

Guarantee *F. Dieckmann* Stamped in the Metal.

Galvanized Steel, Charcoal Iron, Copper, Ingot Iron, Terne, Brass, Zinc.

PATENTED

THE FERDINAND DIECKMANN CO.

STATION B. CINCINNATI, OHIO.

Metal Roofing and Siding.
Corrugated Sheets, painted or galvanized.
Metal Window Frames and Sash Glazed with wired glass.
Skylights.
Skylight Gearing.

Price list and estimates furnished upon request.

Sykes Steel Roofing Co.
108-120 West 19th Place
CHICAGO, ILL.

C. N. HOOPER, Dubuque, Ia.

Vitreous Enameling
TECHNOLOGIST

Designs, builds and starts new plants, improves quality and reduces the costs in those already established.

ORDERS for CORNICE COPPER

STOCK SIZES SHIPPED
the day order is received

C. G. HUSSEY & CO. :: :: Pittsburgh, Pa.

CUT THIS OUT

THE AMERICAN ARTISAN AND HARDWARE RECORD
Daniel Stern, Publisher and Proprietor.
355 Dearborn Street, CHICAGO

Please send us THE AMERICAN ARTISAN each week for three months. At the end of that time we will remit Two Dollars for one years subscription, or 50 cents in case we decide to discontinue.

Name .....

Address .....

Town ..... State .....

GOOD! BETTER!! BEST!!!

No. 1 Fire Pot, $6.00 Net

Some makes of Fire Pots are good; others are better; but those made by the Clayton & Lambert Mfg. Co. are acknowledged the world's best. When making your selection, why not buy the one that is made on honor and is known by mechanics everywhere as the standard of excellence. Order a No. 1 Fire Pot and you will join your friends in saying, "It has no equal." Jobbers sell at factory price or we will ship direct, if cash accompanies the order.

CLAYTON & LAMBERT MFG. CO.,
Detroit, Mich., U. S. A.

Leading Dealers buy ELLER'S PERFECT FIT STEEL CEILINGS because of their advantage over other makes, in being neatly and quickly erected. Send for catalogue.

We are also manufacturers of Tin Plate, Eave Trough and Conductor Pipe, Metal Roofing of all kinds, Cornices and Skylights, and Lock Joint Metal Shingles.

ELLER MFG. CO. : : CANTON, OHIO

NEW YORK OFFICE AND WAREHOUSE, 29-31 Lexington Ave.

Ask Your Dealer For The

Sim

SOLDERING FURNACE

And You Will Make No Mistake

Always Ready—No Smoke—No Odor—No Noise—Unexcelled—Unequalled—Unrivaled—Safe—Sure—Durable.

Galvanized Iron, Brass or Copper Reservoir
Equipped with Cylindrical Slotted Burner

MADE ONLY BY
BURGESS SOLDERING FURNACE CO.
COLUMBUS OHIO, U. S. A.

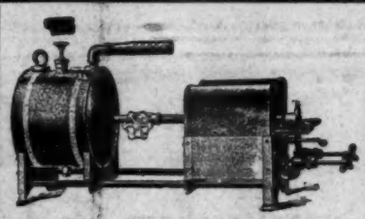
RUBY FLUID

Soldering and Tinning Flux

It is anti-rusting, non-corrosive, non-poisonous and non-explosive, not affected by age, change of temperature, or exposure in open vessels. It is a perfect flux for GALVANIZED and ALL other metals. Shipped in tin cans, ready for use. On approval. Ask for booklet.

The Ruby Chemical Co., Johnstown, Ohio, U. S. A.

Chas. M. Hoover, Sales Mgr., 54 North Clark St., Chicago.



THE TINNER'S FRIEND
"QUICK MEAL"
SOLDERING FURNACE

QUICK, POWERFUL and DURABLE

Heavy Brass Tank with Brass Pressure Pump. Will Heat any size Soldering Iron. Suitable for bench or outside work. Special price made to tinners.

RINGEN STOVE CO., Div., Manufacturers ST. LOUIS, MO.

PUNCH, SHEAR & BENDER

The Victor

Most practical for sheet metal workers, tinners plumbers, hardware stores, blacksmiths, carriage builders, etc. Write for Bulletin No. 16.

NAPPANEE IRON WORKS, NAPPANEE, IND.

Combined Punch and Shears.

Tools for Sheet Metals

INCLUDING

Tinners' and Roofers' Tools, Shears, Punches, Presses and Dies, Can-Making Machinery

MADE BY

NIAGARA MACHINE & TOOL WKS., Buffalo, N.Y.

HAND PUNCHES, SKYLIGHT GEARING and CHAIN LIFTS

Punches ¾ in. hole in ¼ in. iron.

Tinsmiths, Plumbers, Cornice Makers and Coppersmiths

TOOLS

Pipe Threading Machines || Second-Hand Goods Bought and Sold.

H. WEISS & COMPANY 20 Cliff St., NEW YORK

Persistent Advertising

One who watches carefully the pages of general advertising mediums is struck by two things: the persistency with which those advertisers who are recognized as successful maintain their advertising week after week, month, after month, and year after year; they never seem to abate their effort, and apparently the volume of their business increases steadily. The other thing noticeable is the large number of advertisers who thrust their announcements above the surface for a little while and then sink into oblivion. They either had not merit as a basis for their claims or they did not possess the skill to steer their enterprise successfully, or else they lacked the nerve to put forth proper effort.—*Advertising Experience.*

MARVEL

Patent applied for.

PORTABLE PUNCH No. 20

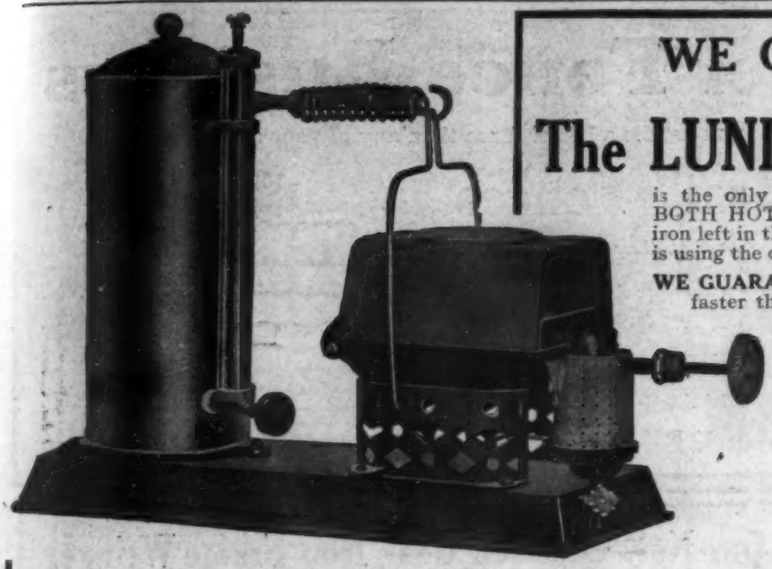
Made entirely of STEEL

Punches ¼ in. hole in ¼ in. and equivalent

Let us send you one on trial.

Write for circular and price of this and other Marvel Punches and Shears.

ARMSTRONG-BLUM MFG. CO.
106 N. Francisco Ave., Chicago, Ill.



WE GUARANTEE
THAT
The LUNDY DOUBLE BLAST SOLDERING FURNACE

is the only Furnace made that throws BOTH HOT BLASTS on the soldering iron left in the Furnace, while the Tinner is using the other one.

WE GUARANTEE that it will heat irons faster than a Tinner can cool them.

WE GUARANTEE it to heat irons more than twice as fast as any Furnace made.

WE GUARANTEE it to be the only Furnace made that can be re-generated while in full operation.

WE GUARANTEE that it has the best generator of any soldering Furnace. It is made of brass.

WE GUARANTEE it to have the best pump ever put on a soldering Furnace and enough air can be pumped in one minute to run it all day.

WE GUARANTEE it to USE LESS GASOLINE than any other soldering Furnace on earth.

Write for further Particulars and Prices.

MEYER FOUNDRY & MANUFACTURING CO.
SOUTH BEND, Ind.

The "TORRID" Square Furnace

The most economical and hottest on the market. Noiseless, odorless and smokeless in operation. Our No. 10 has the greatest range in heating of any furnace made, namely 3 to 12 pound coppers, indoors or on a roof in cold and windy weather. Order of your jobber or we will ship direct for $6.50, on 30 days' approval.

GEO. W. DIENER MFG. CO.
77-83 West Lake Street, Chicago

Here is Your Opportunity

A Three Months' Course in Sheet Metal Pattern Drafting for $5.00

Consisting of the first fifteen full size school drawings 15x20 inches with instructions, covering CONICAL work, ELBOWS, ANGLES, and OFFSETS, GUTTER MITERS, SQUARE AND ANGLE RETURN CORNICE MITERS, SQUARE AND ANGLE FACE MITERS, by short easy methods.

The foundation of Pattern Cutting is gotten from this Three Months' Trial Course

Cut out this coupon and send us with $5.00 and the fifteen drawings and instructions will be sent you by express prepaid.

—ADDRESS—

GRAY'S SCHOOL, 1028 Jackson Ave., New York

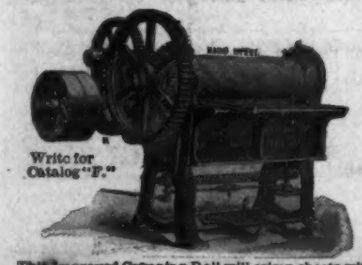
Please send to the following address (3) months' drawings and instructions, enclosed find $5.00 payment in full for same.

Name ..... Street .....

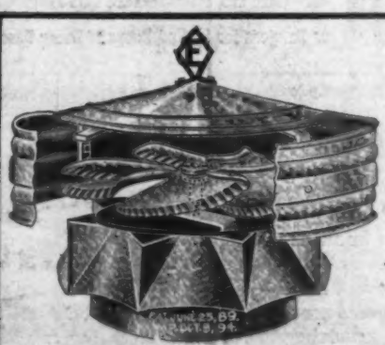
City ..... State .....

When writing please mention THE AMERICAN ARTISAN.

CRIMPING ROLL



This Improved Crimping Roll will crimp sheets without buckling them. We build a complete line of Shears, Punches and Bending Rolls, all sizes for hand or power drive. BERTSCH & CO., Cambridge City, Ind.



EARL'S IMPROVED REVOLVING VENTILATOR

Runs in a self-lubricating bearing that is not affected by heat or cold, and never requires any oil or grease. The Fan revolves without any noise, producing a current of air upward, which positively prevents any down draft.

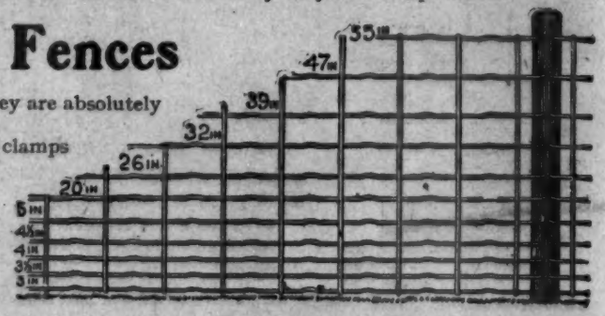
Write for circular.

BERGER BROS. COMPANY
TIN PLATE, SHEET IRON, Etc.
Warerooms and Factory:
100-114 Bread St., PHILADELPHIA, PA.

For a Bigger Fence Business

It is absolutely necessary that you handle a better fence than any of your competitors.

"Pittsburgh Perfect" Fences



are so far ahead of any other on the market that they are absolutely without competition.

This fence is **Electrically Welded**—it has no wraps or clamps to hold moisture and **cannot rust.** It is the strongest fence made and will curb the most powerful beasts. It can be adjusted to uneven ground—as a perfect fence it is in a class by itself.

WRITE US FOR PARTICULARS TODAY

PITTSBURGH STEEL CO., Pittsburgh, Pa.

Hardware Shelving, Shelf Boxes, Screw Cases, Etc.

SEND FOR BOOKLET

W. B. Heller & Co.
Montpelier, Ohio

Complete Stock
Carried at our Branch

220-226 Wyandotte Street
KANSAS CITY, MO.

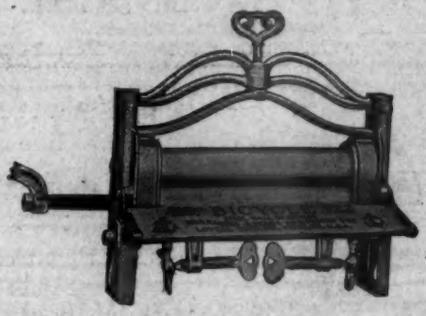
Our New Enclosed Gear Iron Frame Wringer with Lovell's Patented Steel Ball Bearings

Same quality as the popular wood frame wringer, viz. No. 770 Bicycle.

ANCHOR BRAND TRADE MARK L.M. CO. ERIE. PA.

BICYCLE

Lovell's
Cog Wheel Shields
Steel
Ball Bearings



No. 722 Rolls 10x1¾ inches, same price as No. 770 Bicycle.
No. 723 Rolls 11x1¾ inches, same price as No. 771 Bicycle.

Order at once, a sample case of these from your Jobber.

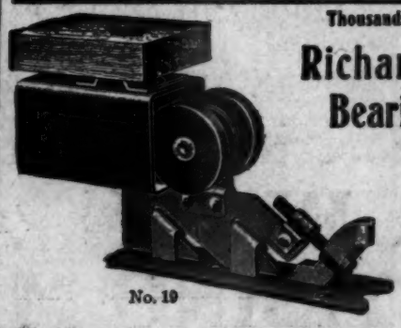
LOVELL MFG. COMPANY, Erie, Pa., U.S.A.

- SHELVING -
WARREN SYSTEM
SELF PAYING
HARDWARE STORE EQUIPMENT
IN INTERCHANGEABLE SECTIONS
& SCREW, BOLT & GUN CASES.
J. D. WARREN MFG. CO. CHICAGO U.S.A.

INTERCHANGEABLE
LOCK-CORNER SHELF BOXES
For the Hardware Trade.
THE A. H. GREEN CO.,
97-101 Warren St., NEW YORK.

Thousands in Use and the Demand Constantly Increasing

Richards' Hero Trolley Ball-Bearing House Door Hanger



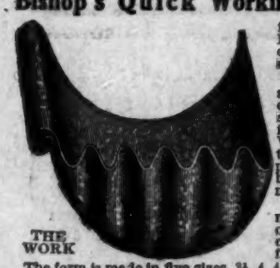
No. 19

Noiseless fibre wheels. Wood header is furnished with track and is easily put up. Track can be easily adjusted or taken down after walls are plastered.

Manufactured by
The Richards Manufacturing Co., Aurora, Ill., U. S. A.

Door Hangers for Sliding Doors of Every Description. Fire Door Fixtures.
SEND FOR CATALOGUE

Bishop's Quick Working Forms



for closing end of Eave Trough in corrugations, as shown herewith.

You can close an end much quicker, neater and cheaper than in any other way. When you cut a trough, you can put an end in both parts, thus making no waste. The frost will not burst the end out. You can close old work from a ladder.

The form is made in five sizes, 3½, 4, 4½, 5 and 6. For sale by jobbers or tinning specialty houses.

BISHOP HARDWARE COMPANY,
Dowagiac, Michigan.

YOU

Need a Tinner, Furnace Man or Hardware Clerk? A want ad in THE AMERICAN ARTISAN, that's all that's necessary to solve the problem.

Are you looking for a chance to go into business for yourself?

I know of places in every state where retail stores are needed—and I also know something about a retail line that will pay handsome profits on a comparatively small investment—a line in which the possibilities of growth into a large general store are great. An exceptional chance to get started in a paying business, and in a thriving town. No charge for my services. Write today for particulars and booklet telling how others have succeeded in this line and how you can succeed with small capital. EDWARD B. MOON, 13 West Randolph Street. Chicago.

FREEZERS

"LIGHTNING"

THAT EXCEL IN
Easy Running
Quick Freezing
Economy
Convenience
Practical Results

THAT ARE
Well Advertised
In Demand
Easily Sold
Satisfactory in Use
Of Known Reputation

"BLIZZARD"

THE "BEST MADE" because in practical use, they are convenient, compact in size, use smallest amount of ice and salt, run easily, freeze quickly, produce smoothly frozen creams or desserts with little bother and less work. We make also

MACHINE FREEZERS AND ICE BREAKERS

Sold by Leading Jobbers Catalog Sent Free

NORTH BROS. MFG. CO., Philadelphia

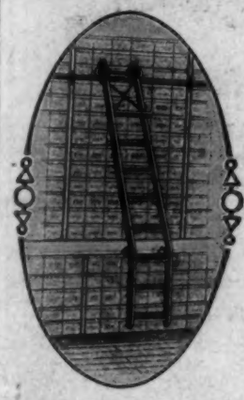
The LENOX HOTEL
BUFFALO

Modern High Grade Fireproof

OUR OWN RAPID ELECTRIC CARRIAGES EXCLUSIVELY FOR PATRONS, operate continuously every few minutes from Hotel through Business District and to all Depots for principal trains.

EUROPEAN PLAN.
Rates $1.50 per day and upward.

GEORGE DUCHSCHERER, Prop.



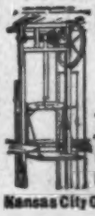
The Milbradt Ladders

ALWAYS PROVE
HIGHLY SATISFACTORY

because they are made of the very best material that can be obtained, finished up in first-class style, and as there is nothing about them to give or wear out, or get out of order, will last indefinitely.

Write for our Illustrated Catalogue.

MILBRADT MFG. COMPANY
1440 N. 8th St., ST LOUIS, MO.



ELEVATORS

Improved, Quick and Easy Rising Steam, Electric and Hand Power.

SEND FOR CIRCULAR

KIMBALL BROS. CO.
1031 Ninth St., COUNCIL BLUFFS, IOWA
Kansas City Office, Water Works Bldg., Kansas City, Mo.

STANDARD HORSE NAIL CO.
NEW BRIGHTON, PA., U.S.A.
MANUFACTURE
A Full Line of Horse Nails
Send for Catalogue, Prices & Samples.

Every Store Should Have One!

THE AMERICAN ARTISAN ADVERTISING MANUAL

Retail merchants are to-day doing more advertising than ever before. They are doing better advertising also. With a little assistance most retail dealers could prepare very effective advertisements. To supply this assistance is the mission of this volume.

It contains 278 pages and 228 illustrations of advertisements which have actually appeared in newspapers. It contains innumerable hints, suggestions and helps that every dealer will find valuable. It is brim full of information for those who prepare their own advertisements.

Every merchant should secure a copy. **The Price is $3.50 Per Copy.**

For Sale by your Bookseller or by

DANIEL STERN, Publisher, 355 Dearborn Street, Chicago, Ill.

"BAILEY" ADJUSTABLE IRON PLANES

Note the Following Points of Superiority in Design:

The Cutter supported on the iron Frog clear down to the heel of the bevel and very close to the cutting edge.

The front support directly at the rear of the Mouth.

The deep rear support greatly strengthening the sides and bottom of the Plane and preventing any possibility of the Plane being drawn out of true when face of Frog is screwed up solid.

The Frog screws located between the two supports correctly distributing the pressure between them.

In effect the Plane is one solid piece from Cap to Bottom, while at the same time the Frog is adjustable.

Write for Catalogue.

THE STANLEY RULE & LEVEL CO.

NEW BRITAIN, CONN., U. S. A.

DISSTON

SAWS, TOOLS AND FILES

MADE SOLD USED **ON MERIT**

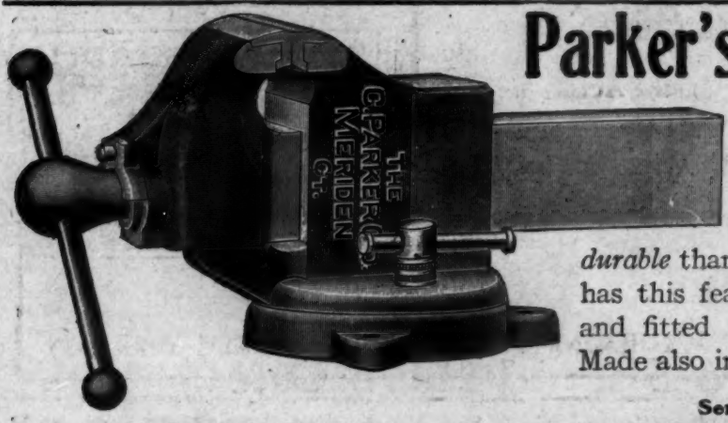
AND THE CONFIDENCE PLACED IN THE QUALITY AND EFFICIENCY OF THE **DISSTON BRAND** SHALL BE AS WELL-DESERVED IN THE FUTURE AS IT HAS BEEN DURING THE PAST

SIXTY-NINE YEARS

HENRY DISSTON & SONS, Inc.

KEYSTONE SAW, TOOL, STEEL AND FILE WORKS.

PHILADELPHIA, PA.



Parker's Reinforced Slide Solid Jaw Swivel Vise

This Vise is made of Semi-Steel for Extra Heavy Work. It has a Reinforced Sliding Jaw which makes it *much stronger* and *more durable* than other vises. No other vise made has this feature. The Steel Faces are milled and fitted to the Jaws and are Renewable. Made also in Stationary style.

Send for Special Vise Catalog No. 5

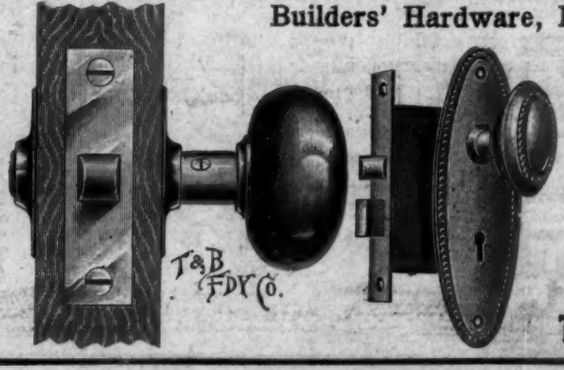
The Charles Parker, Co., Meriden, Conn. and 32 Warren St., New York

---

Light Gray Iron Castings

Builders' Hardware, Dampers and Damper Clips.

OIL AND GAS STOVES, FURNACE LAMPS, MOLASSES GATES, LETTER BOXES, HARDWARE SPECIALTIES.



Write for our complete catalog.

The Taylor & Boggis Fdry. Co., Cleveland, Ohio

LUFKIN

Measuring Tapes

are made in every conceivable variety, to suit every purse and purpose, but all of the same superior quality.

¶ Our extensive advertising creates a demand, that every progressive dealer should be able to satisfy.

¶ It takes but a minute and a postal to ask for our catalog—it's more than worth while.

Please Mention THE AMERICAN ARTISAN

THE LUFKIN RULE CO. Saginaw, Mich., U. S. A.

New York London, Eng. Windsor, Ont.

YANKEE [All Steel] DAMPERS and CLIPS

FOR SMOKE PIPE AND FURNACE PIPE

THE S. M. HOWES COMPANY. 40-46 Union St., BOSTON

NOTE ITS SIMPLICITY

Automatic Swivel Vise

Locks Automatically by Tightening the Jaws

Saves 20 per cent Vise Labor

SEND FOR CATALOGUE

ROCK ISLAND TOOL CO. ROCK ISLAND ILLINOIS, U.S.A.

136 Liberty St. NEW YORK

116 Lake St. CHICAGO

DENVER, 206 McPhee Building

"Yemco"

Quick Acting Adjustable Wrench

OPERATES WITH ONE HAND

Made from the best steel drop forgings, hardened and tempered. Strongest and best Automatic Wrench on the market.

Retails $1.00 Each

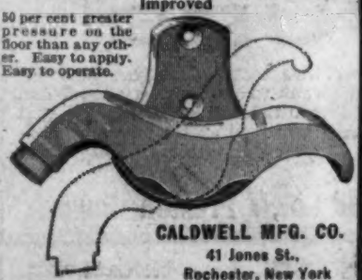
Your Jobber or

SMITH & HEMENWAY CO., 108 Duane St., NEW YORK CITY

Empire Door Holder

Improved

50 per cent greater pressure on the floor than any other. Easy to apply. Easy to operate.



CALDWELL MFG. CO.

41 Jones St., Rochester, New York

The Highest Grade File Made.

DELTA

TRADE MARK DELTA

DELTA FILE WORKS

CARVER FILE CO.

PHILADELPHIA, PA.

An independent organization not connected with the trust in any form, shape or manner.

FILES OF QUALITY

FILES

The File You Will Eventually Use.

NAILS THAT NEVER RUST

KEYSTONE BRAND GALVANIZED NAILS

CUT OR WIRE

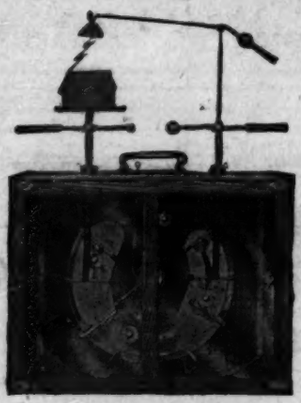
Evenly Coated Perfectly Separated

KEYSTONE NAIL CO., Pittsburgh, Pa.

Send for Catalogue and Prices.

Scientifically made Pure Copper Cable Lightning Rods
FIXTURES ORNAMENTS
QUALITY, SERVICE, PRICE
Positively Nothing Better.
Agents wanted. Write to-day
Sole makers "ELECTRA" Silver Colored Strand Pure Copper Cable.
"ELECTRA" LIGHTNING ROD COMPANY
Department "T"
CRESCO, - - IOWA

Lightning Rods



We loan these machines to our customers without charge.
Absolutely Convincing.
We manufacture all kinds of Cable and Section Lightning Rods. Get Our Literature.
E. A. FOY & CO.
450 East Eighth St., Cincinnati, O.

Books By Mail

The Publisher of THE AMERICAN ARTISAN will take pleasure in supplying books of whatever character, at catalogue prices, prepaid by mail, to any address, on receipt of price, The following are lines specially represented:

Sheet Metal Working
The Foundry
The Workshop
Heating and Ventilating
Plumbing and Drainage
Bicycle Repairing
The Store and Office

DANIEL STERN
PUBLISHER AND BOOKSELLER
355 DEARBORN ST., CHICAGO

THE HARRINGTON AND KING-PERFORATING CO.

PERFORATED METALS
OF EVERY DESCRIPTION AND FOR ALL PURPOSES
FOR SCREENS OF ALL KINDS

No. 212 NORTH UNION STREET, CHICAGO, ILL.
New York Office, 114 Liberty Street.

The BUFFALO MFG. CO.
BUFFALO, N. Y.
High Grade Standard Metalware

These Are ALL Good Sellers

Chafing Dishes
Table Kettles and Stands
Coffee Extractors
Water Filters
Nursery Chests
Crumb Trays and Scrapers
Tea and Bar Urns

Bathroom Fixtures

Wine Coolers
Water Coolers
Baking Dishes
Coal Vases and Hods
Candlesticks
Cuspidors
Match Safes
5 O'Clock Teas
Jardinieres, etc., etc.

Write for Our Illustrated Catalogue Today

A TRIAL ORDER WILL CONVINCE YOU

BRANCH OFFICES
18 Warren Street - - - - New York
1430 Arapahoe Street - - Denver, Colorado
40 Dearborn Street - - - - Chicago
61 Young Street - - - Toronto, Canada

Washing Machines Are Staple—
They are good
Things to use
Which makes
Them good
To sell—
That is if
They are
Reliable
Machines.

The White Line Of Washing Machines are Reliable—
Fully guaranteed—
Safe to buy—
And safe
To sell.
Do you
Handle
Them?

White Lily Mfg. Co.
1500 Rockingham Road, Davenport, Iowa.

99 87/100 PURE

That is what a sample of the copper wire tested that goes into our famous Copper Cable Lightning Rod. We want to send you a sample and quote you prices on the best goods there are on the market at a price that will surprise you. We loan you one of our improved static machines with first order for 2,000 feet. Also furnish 25 year guarantees. Write today for agency to

Maher & Son Lightning Rod Co., Preston, Iowa

ELLIOTT
PATENTED FEB. 17, 1903.

GUARANTEE.

THIS IS TO CERTIFY

That.....

of.....

Has an Agency for ELLIOTT ANTI-RUSTING TINWARE. We, the undersigned

The Elliott Manufacturing Company

do hereby warrant and guarantee each and every piece of our anti-rusting tinware against rust.

Should any be returned RUSTED OUT we guarantee to replace it with new goods free of charge.

We insist upon this guarantee being given with every article sold.

IN WITNESS WHEREOF we have hereunto affixed our corporate seal

This.....day of.....1909.

ELLIOTT MANUFACTURING COMPANY

WARREN, ILLINOIS.

Sold to but one dealer in a town

Something New
Something Different
Something Better

And besides a

"Square Deal"

to every dealer and consumer as its name implies.

It's a washing machine of course — we couldn't make anything else if we tried, but specialization makes perfect.—See the point? —Perfectly finished goods as you like them, certainly.

H. F. BRAMMER MFG. CO.

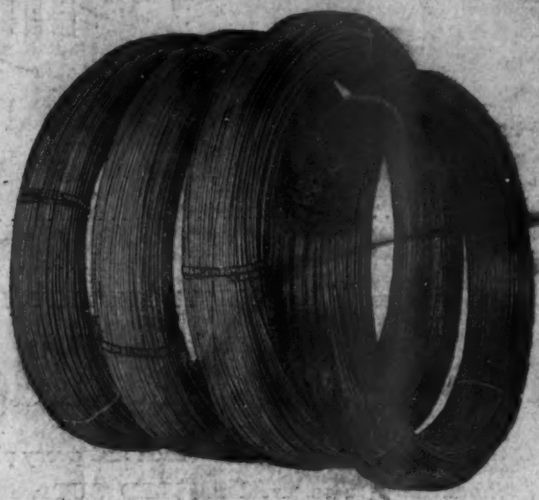
DAVENPORT, - IOWA

Write us today for the agency

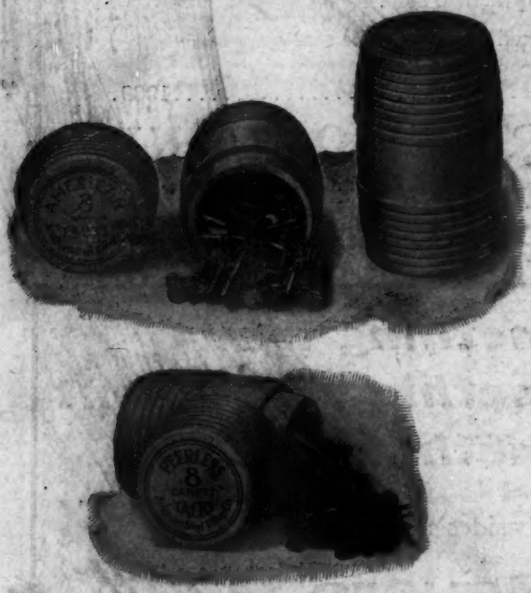
American Steel & Wire Co.

Chicago New York Denver San Francisco

American Wire Rope



W. & M. Telephone Wire



American
Wire Nails

And Wire of every Description.

4 Ft. BRAKE
Capacity, 12 Gauge.

CORNICE BRAKE
Capacity, 20 Gauge and Lighter.

THE J. M. ROBINSON MFG. CO.

Manufacturers of Sheet Metal Working Machinery

3282 to 3288 Spring Grove Avenue CINCINNATI, OHIO

Dealers! This Is For You!

A new book, just published, which should have a place in every store:

THE AMERICAN ARTISAN ADVERTISING MANUAL

This is a book worth many times its original cost to any dealer who advertises. In its 278 pages there are exactly 228 illustrations of advertisements that have actually been inserted by dealers all over the country in their local papers.

The advertisements are all comprehensively criticised—their weaknesses indicated—their strong features favorably commented on to the end that any dealer by applying the countless hints and suggestions to his own copy can greatly increase the effectiveness of his advertisements.

If your advertisements are not producing the desired results, consult this book for the reason. It will not only give the reason, but show you how to avoid the mistakes you have been making.

Are your ads unattractive? The subject of "display" is given space throughout the book.

Is there any question concerning your advertising upon which you would like expert opinion? THE AMERICAN ARTISAN ADVERTISING MANUAL will supply it.

It is an ever-ready reference book and no enterprising dealer should be without it.

The book is elegantly gotten up in a durable manner and is cloth bound.

The price is $3.50 per copy. For sale by your book seller

OR BY

DANIEL STERN, PUBLISHER,

355 Dearborn Street Chicago, Illinois.

THE RIFLE OF TODAY

Easy Take-Down

Write for Advance Catalog

of "Standard" Rifles now. It will show you why you should place an order with your jobber when these rifles are ready to put on the market about JULY 1ST

SELF-OPERATING HAND-OPERATED

"STANDARD" {HIGH POWER / REPEATING / HAMMERLESS} RIFLES

Hand-operating action so easy it doesn't disturb the aim in the slightest. Automatic action always under perfect adjustment and control. Ready about July 1st. Write for catalog NOW. Order through your jobber THEN.

STANDARD ARMS CO., 133 F Street, Wilmington, Del., U. S. A.

The Sign of Good Roofing Tin

at the Louisville Convention was the

"TARGET and ARROW"

brand of Taylor Tin (formerly known as Taylor's "Old Style".)

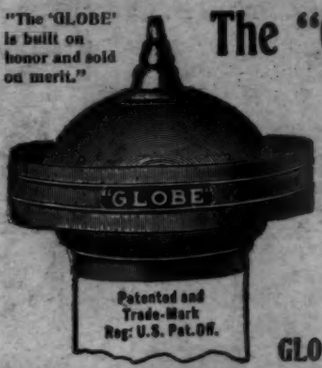
Same durable quality this brand has always stood for. Order from stocks carried by leading jobbing houses everywhere, or direct from the makers.

N. & G. TAYLOR CO.

The Pioneer American Tin Plate House

1810 **Philadelphia** 1909

"The 'GLOBE' is built on honor and sold on merit."



The "GLOBE" Ventilator

in COPPER, GALVANIZED IRON and with Glass Tops for Skylight purposes.

ABSOLUTELY STORM PROOF

For Perfectly Ventilating Schools, Churches, Halls, Mills, Factory and Audience Rooms of Every Character

SMOKY CHIMNEYS CURED

"GLOBE VENTILATED RIDGING"

Send for Pamphlet

MANUFACTURED BY

GLOBE VENTILATOR CO., Troy, N.Y.

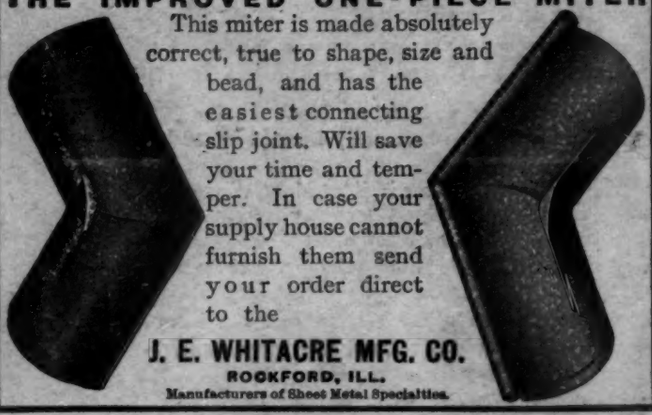
SNAP HOSE COUPLING

SAVES TIME, HOSE AND TEMPER

Prevents kinking and makes a quick and easy connection. Absolutely the best hose coupling on the market. Three years of success behind it. Write for particulars.

STUBER & KUCK, Peoria, Ill.

THE IMPROVED ONE-PIECE MITER



This miter is made absolutely correct, true to shape, size and bead, and has the easiest connecting slip joint. Will save your time and temper. In case your supply house cannot furnish them send your order direct to the

J. E. WHITACRE MFG. CO.

ROCKFORD, ILL.

Manufacturers of Sheet Metal Specialties.

A FAST SELLING ITEM

and one which leaves the dealer a good profit is our

BERLIN KETTLE

Made with tin or enameled cover. Our line consists of over 500 fast selling items.

Like all our goods it is strictly first class and sells at a reasonable price.

WRITE FOR CATALOG.

Star ★ Enameling & Stamping Co., PITTSBURGH, PA.

STRICT ADHERENCE

to the Welsh Hammered Open Hearth Process and exercise of extraordinary care throughout every department of our works makes

"Scott's Extra Coated Roofing Tin"

better than any other. It is always the same, always good and possesses remarkable wearing qualities. You take no chance when buying and using it.

FOLLANSBEE BROTHERS CO.

MAKERS

PITTSBURGH

Drink Pure Water

The **No. 50 Star Pump** shown here will positively purify the water in any well or cistern in a short time.

This purifying feature alone makes it the only pump fit to put in any well where the water is used for household purposes, for it will surely save its cost in the doctor's bill many times over.

As it is made of No. 24 gauge galvanized iron it is a very substantial and handsome outfit, and will last for years.

Our line of purifying pumps is very complete. So is our line of Galvanized Chain Pump Curbs and Tubing.

Ask your jobber for Star Pumps.

Star Bucket Pump Company

ST. LOUIS, MO.

YALE STOVE PIPE

Russia finish, pat. Lock

It is made of a very high grade of uniform color Blue Polished Steel and lacquered to prevent rusting. Made in all sizes. Packed twenty-five and fifty joints to crate. For sale by the Jobbing Hardware Trade throughout the United States. Mfg. by HEMP & CO. 2nd and Chouteau Avenue, ST. LOUIS.

In the event your jobber does not handle this pipe, send your inquiries to us.

The "CENTENNIAL"

RAIN-WATER-CUT-OFF

The strongest, most durable and cheapest CUT-OFF on the market.

The only single cut-off made to fit Corrugated and plain pipe and which can be used without extra pipe or elbows. For sale by all leading jobbers.

Manufactured only by

The Sullivan-Geiger Co.

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